

## **APPENDIX 4.1**

### City of Irvine Noise Element

---

## ***ELEMENT F*** **NOISE**

***GOAL: Contribute to a healthy and safe environment by minimizing noise impacts.***

---

### **Description of Noise Element**

Noise, as defined in this element, is generally unwanted sound which is considered unpleasant and bothersome. Unwanted noise can affect people both physically and psychologically. People are usually more sensitive to noise during the evening and nighttime than during the day because of reduced activities, fewer noise emitting sources, and the need for rest. Land uses in which people are especially sensitive to noise include residential, convalescent and rest homes, hospitals, libraries, churches, and schools. This element provides guidelines for minimizing noise impacts from various sources.

The Community Noise Equivalent Level (CNEL), commonly used by California local governments, is used by Irvine to quantify community noise levels and standards. The CNEL is an average of noise levels over a twenty-four hour period. Refer to technical definitions on Page F-3.

The City's interior and exterior noise standards are shown on Table F-1. Table F-2 shows each land use category and the CNEL which is compatible with the uses in the category.

## Existing Conditions

The most pervasive noise in Irvine comes from mobile noise sources such as motor vehicles, railroads, and aircraft. Three major freeways, one railroad line, and three airports expose the City to significant noise impacts. Aircraft flight tracks also impact particular areas of the City significantly. The City is also exposed to noise emanating from sources such as industrial, commercial, and construction activities.

Unwanted noise is divided into two major categories of noise sources - mobile and stationary.

### 1. Mobile Noise Sources.

Mobile sources are transportation-related (non-fixed) including motor vehicles, railroad, and aircraft. Motor vehicle noise is characterized by a high frequency of events, short duration, and proximity to areas sensitive to noise exposure. Rail transit and aircraft operations frequently generate extremely high noise levels which are disruptive to human activity.

#### a. Motor Vehicles.

Sources of vehicular traffic noise are automobiles, buses, trucks, and motorcycles. Noise is generated by engines, exhaust systems, transmissions, fans, tires, and air movement. The noise level is relatively constant on major roads where traffic is heavy and intermittent on neighborhood streets where traffic is lighter.

Table F-3 describes vehicular noise impacts for both the existing and buildout condition

#### b. Railroads.

Railroad noise is the result of the mechanical processes of the engine, the interaction of the wheels with the track, and use of the whistle. The amount of noise generated is dependent upon the speed of the train and the number of cars.



Railway lines that pass through the central part of the City in an east/west direction are located on right-of-way that is owned and managed by the Orange County Transportation Authority. The railroad operation includes commuter trains and freight trains. The number of freight trains depends on economic demand. There are also spur lines located IBC (Planning Area 36), and Irvine Industrial Complex-East (Planning Area 35). The noise generated by these spur lines is insufficient to provide CNEL contours in excess of 60 dB outside the right-of-way.

#### c. Aircraft.

Aircraft noise generally affects areas within the airport vicinity during takeoffs and landings, and areas located around the flight tracks. Airborne noise sources in Irvine included aircraft operations at MCAS El Toro and helicopter

### **Definitions**

**Community Noise Equivalent Level (CNEL):** The CNEL is an average of noise levels over a twenty-four (24) hour period. The measured energy equivalent level (Leq) is weighted for the hours when there is a greater sensitivity to noise. A weighting factor of 5 decibels is applied to the evening period (7 to 10 p.m.) and a weighting factor of 10 decibels is applied to the night time period (10 p.m. to 7 a.m.). The daytime Leqs between 7 a.m. and 7 p.m. are not weighted.

**Decibel:** dB, a numerical expression of the relative intensity of a sound as it is heard by the human ear.

**dBA:** The "A-weighted" scale for measuring sound in decibels, it weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness although the noise is actually ten times more intense.

**Leq:** The energy equivalent level, defined as the average sound level on the basis of sound energy. The Leq is a "dosage" type measure and is the basis for the descriptors used in current standards, such as the 24- hour Community Noise Equivalent Level (CNEL) used by the State of California.

### **Standards**

**Interior and Exterior Noise Standards:** Table F-1 identifies the maximum interior and exterior noise levels for each land uses category. The standards assume the incorporation of California State Law requirements into all projects.

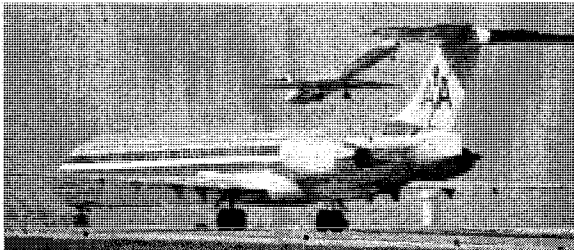
**Land Use Noise Compatibility Table F-2** identifies the compatibility of proposed projects and future noise levels. The diagram is used in evaluating new development projects, including General Plan amendments, zone changes, tentative maps, conditional use permits and master plans.

**Single Event Noise Standard:** The maximum interior noise levels of the loudest 10% of single noise events [Lmax(10)] for noise sensitive land uses within the 60 CNEL of aircraft and railroad noise sources shall not exceed 65 dBA between 7 a.m. and 7 p.m nor 55 dBA between 7 p.m. and 7 a.m. for typical occupancy. (Note: The samples for single event noise measurement must include representative aircraft operation.)



operations at MCAS Tustin; and, currently include civil air operations at John Wayne Airport.

MCAS El Toro: The major aircraft noise source in Irvine was MCAS El Toro, which was located in Planning



Area 51. The most recent noise study for MCAS El Toro was adopted in 1981 by the Marine Corps as part of the Air Installation Compatible Use Zone (AICUZ) Study.

The noise levels were based on noise characteristics of aircraft as measured by the military, and annual operations data (number and type of aircraft movements, and flight tracks), according to the Marine Corps' records. The final position of the computed CNEL contours was verified by several site specific studies outside of Irvine. Field measurements will occur in conjunction with sensitive land uses to assess impacts of aircraft noise together with other noise sources (e.g. vehicular).

MCAS El Toro was closed in July, 1999. In its place, the County of Orange has proposed a commercial

airport, which will likely have an impact on aircraft noise as well as vehicular noise. The City of Irvine actively opposes a commercial airport.

The El Toro Reuse Planning Authority which consists of the cities of Irvine, Mission Viejo, Laguna Hills, Lake Forest, Laguna Beach, Dana Point and Laguna Niguel, has prepared the Millennium Plan for the reuse of El Toro. The Millennium Plan consists of a mix of nonaviation land uses which may have different vehicular and stationary noise levels than currently associated with military activities at MCAS El Toro.

MCAS Tustin: The noise from helicopter operations at MCAS Tustin also affected the City. The City formerly used the AICUZ noise contour map as depicted in the 1983 Master Plan, for MCAS Tustin, for the assessment of the helicopter noise impacts.

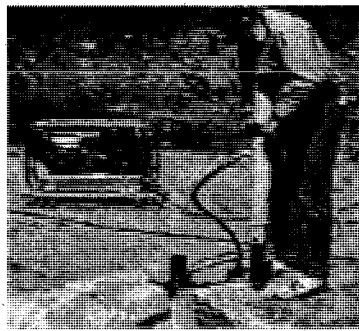
MCAS Tustin was closed in 1999. This eliminated aircraft noise but the land uses that could be developed in its place may increase vehicular and stationary noise.

John Wayne Airport: The John Wayne Airport noise contour map, prepared annually by the Noise Abatement Center of John Wayne Airport, is used for the assessment of aircraft noise impacts. Annual updates of the original 1980 John Wayne Airport noise contour map, are used for planning analysis.

Figure F- 1 illustrates the former noise contours for the now closed MCAS Tustin and the existing noise contours for John Wayne Airport.

## 2. Stationary Noise Sources.

Stationary noise sources are the noise sources in the community such as industrial and mechanical equipment, which are often referred to as "fixed sources." Industrial noise generated by processing and operation is usually of long duration at relatively low frequencies.



Construction sources generate high noise levels for extended periods of time. Examples include: rock crushers; mechanical electric equipment such as air conditioners or refrigeration units; various power tools such as lawn mowers or leaf blowers; construction activities; commercial or industrial activities such as car wash facilities; animal noise; and human-related activities such as loud parties, loud music, radio, T.V., or children playing.

The City's Noise Ordinance establishes the maximum permissible noise level which may intrude into a neighbor's property. The Ordinance (adopted in 1975 and revised in 1984) establishes noise level standards for various land use categories being affected by stationary noise sources. The ordinance regulates the timing of construction activities and

includes special provisions for sensitive land uses.

## Trends

### 1. Mobile Noise Sources.

#### a. Motor Vehicles.

Motor vehicle noise will continue to be significant. Irvine will also be impacted by through traffic from yet-to-be-developed areas to the south, east and west. An increased use of convenient mass transit systems may contribute to noise reduction. Future motor vehicle noise is shown in Figure F- 3.

#### b. Railroads.

It is expected that over the years there will be an increase in railroad traffic especially as commuter trains are added along the Los Angeles-San Diego (LOSSAN) corridor. Future railroad noise is shown in Table F-3.

#### c. Aircraft.

It is expected that over the years noise impacts to the City from aircraft operations at John Wayne Airport will not increase because of agreements restricting the number of flights, hours of noise, and aggregate noise. Based on the State Airport Noise Regulation (Title 21), John Wayne Airport (as a civil airport) is required to reduce the airport noise impact on existing communities.

## **2. Stationary Noise Sources.**

As the City develops further, it is expected that stationary noise levels will increase. However, noise impacts can be mitigated by use of control measures and enforcement of the Noise Ordinance in the development process.

### **Identification of Issues**

- 1. How can the City ensure that residents are not exposed to excess mobile noise levels?**
- 2. How can the City ensure that residents are not exposed to excess stationary noise levels?**
- 3. How can these regulations be coordinated to provide a healthy noise environment?**
- 4. How can public awareness in this area be increased?**

## Response to Issues

The following objectives and policies have been formulated as a policy response to the identified noise issues.

### **OBJECTIVE F-1: MOBILE NOISE**

***Ensure that City residents are not exposed to mobile noise levels in excess of the CNEL Interior and Exterior Noise Standards (Table F-1), and Single Event Noise Standard.***

*The following policies support Objective F-1:*

***Policy (a):*** Require all plans submitted for development review to show the Noise Element existing noise contours, future noise contours and aircraft noise contours.

***Policy (b):*** Prohibit residential development within the 65 CNEL of aircraft noise contours.

***Policy (c):*** Ensure that all proposed development projects are compatible with the existing and projected noise level by using the Land Use Noise Compatibility Matrix (Table F-2).

***Policy (d):*** Require noise studies to be prepared in accordance with the City's environmental review procedure for all projects that are not "clearly compatible" with the future noise level at the site.

***Policy (e):*** Require noise studies to use the future motor vehicle noise reduction of 1.9 dBA in identifying future noise levels of streets.

***Policy (f):*** Require noise studies to identify all the mitigation measures necessary to reduce noise levels to meet the CNEL standard (Table F-1) and Single Event Noise Standard.

***Policy (g):*** Require compliance with Single Event Noise Standard for noise sensitive land uses within the 60 CNEL of aircraft and railroad noise contours.

***Policy (h):*** Require conditional use permits for noise sensitive land uses such as hospitals, libraries, churches, and schools to mitigate noise-related impacts.

***Policy (i):*** Update highway/railroad noise levels (Table F-3) every five years and/or whenever the City's Irvine Traffic Analysis Model (ITAM) has been significantly changed.

***Policy (j):*** Ensure that any proposal to update aircraft noise contours used by the City of Irvine for planing analysis is submitted, prior to adoption by the City, to the Airport Land Use Commission

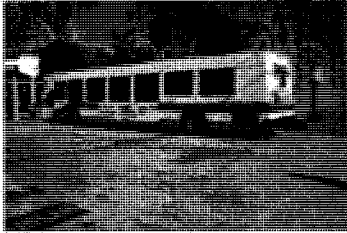
***Policy (k):*** Incorporate the following types of noise mitigation measures in the design of new highways and streets: alignment, barriers, lateral separation, and vertical profile.

***Policy (l):*** Examine the existing and projected future noise environment when considering amendments to the City's circulation system.

***Policy (m):*** Reduce noise impacts from mobile sources by encouraging use of alternative modes of transportation

**Policy (n):** Reduce railroad noise impacts to new development by incorporating measures for mitigating noise levels to meet the City's noise standards.

**Policy (o):** Participate in cooperative efforts with Orange County Transit Authority to fund and construct grade separations, where feasible, through residential areas of the City, giving consideration to all potential funding sources.



## **OBJECTIVE F-2: STATIONARY NOISE**

**Ensure that City residents are not exposed to stationary noise levels in excess of the City Noise Ordinance standards.**

*The following policies support Objective F-2:*

**Policy (a):** Require any new construction to meet the City Noise Ordinance standards as a condition of building permit approval.

**Policy (b):** Require developers to depict, on any appropriate development application review (zone change, subdivisions, conditional use permit, site plan, and building plans), any potential noise sources known at the time of submittal and mitigation measures that ensure these noise sources meet the City Noise

Ordinance standards. Such sources include, but are not limited to, the following:

- Truck pickup and loading areas.
- Mechanical and electrical equipment such as air conditioning, swimming pool pumps and filters, and spa pumps.
- Exterior nuisances such as speaker boxes and outdoor public address systems.



**Policy (c):** Condition subdivision approval of the projects adjacent to any developed/occupied uses by requiring the developer to submit a construction-related noise mitigation plan to the Director of Community Development for review and approval prior to issuance of grading permits. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project, through the use of such methods as following:

- Temporary noise attenuation fences.
- Preferential location of equipment.
- Use of current technology and noise suppression equipment.

## **OBJECTIVE F-3: NOISE ABATEMENT**

***Achieve maximum efficiency in noise abatement efforts through intergovernmental coordination and public information programs.***

***Policy (g):*** Disseminate public information regarding City noise regulations and programs, the health effects of high noise levels, and means of mitigating such levels.

*The following policies support Objective F-3:*

***Policy (a):*** Coordinate efforts to reduce noise impacts with appropriate public and government agencies.

***Policy (b):*** Monitor federal and state legislation and programs which will reduce noise in Irvine.

***Policy (c):*** Use police power to enforce the appropriate noise standards in the state's motor vehicle code and other state and federal legislation for mobile noise sources.

***Policy (d):*** Encourage appropriate agencies to maximize the use of noise reducing equipment in the City.

***Policy (e):*** Seek the cooperation of aircraft regulatory agencies in the modification and selection of flight paths which will reduce noise impacts on residential and other noise sensitive areas.

***Policy (f):*** Monitor and update, as needed, the City Noise Ordinance so that it will continue to be effective in restricting noise from stationary sources.

**TABLE F-1**  
**INTERIOR AND EXTERIOR NOISE STANDARDS**  
**ENERGY AVERAGE (CNEL)**

| LAND USE CATEGORIES       |   | ENERGY AVERAGE (CNEL)   |                         |
|---------------------------|---|-------------------------|-------------------------|
| CATEGORIES                | USES  | INTERIOR <sup>(1)</sup> | EXTERIOR <sup>(2)</sup> |
| RESIDENTIAL               | Single-Family   | 45 <sup>(3)</sup>       | 55 <sup>(4)</sup>       |
|                           | Multiple-Family   |                         | 65 <sup>(7)</sup>       |
|                           | Mobile Home   | _____                   | 65 <sup>(5)</sup>       |
| COMMERCIAL/<br>INDUSTRIAL | Hotel, motel, transient lodging                                 | 45                      | 65 <sup>(6)</sup>       |
|                           | Commercial, retail, bank, restaurant                            | 55                      | _____                   |
|                           | Office building, professional office,<br>research & development | 50                      | _____                   |
|                           | Amphitheater, concert hall, auditorium,<br>meeting hall         | 45                      | _____                   |
|                           | Gymnasium (Multipurpose)  | 50                      | _____                   |
|                           | Health clubs  | 55                      | _____                   |
|                           | Manufacturing, warehousing,<br>wholesale, utilities             | 65                      | _____                   |
|                           | Movie theater   | 45                      | _____                   |
| INSTITUTIONAL             | Hospital, school classroom                                      | 45                      | 65                      |
|                           | Church, library   | 45                      | _____                   |
| OPEN SPACE                | Parks   | _____                   | 65                      |

Interpretation:

1. Interior environment excludes bathrooms, toilets, closets, and corridors.
2. Outdoor environment limited to private yard of single-family or multi-family residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.
4. Noise level requirement with open windows, if they are used to meet natural ventilation requirement.
5. Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
6. Except those areas affected by aircraft noise.
7. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

**TABLE F-2**  
**LAND USE NOISE COMPATIBILITY**

| LAND USE CATEGORIES                                      |   | ENERGY AVERAGE (CNEL) |    |    |    |    |    |     |
|--|---|-----------------------|----|----|----|----|----|-----|
| Categories   | Uses  | ≤                     | 55 | 60 | 65 | 70 | 75 | 80> |
| RESIDENTIAL  | Single-Family   | A                     | A  | B  | B  | C  | D  | D   |
| RESIDENTIAL  | Mobile Home   | A                     | A  | B  | C  | C  | D  | D   |
| COMMERCIAL<br>Regional                                   | Hotel, Motel,<br>Transient Lodging  | A                     | A  | B  | B  | C  | C  | D   |
| COMMERCIAL<br>Regional<br>Community                      | Commercial retail,<br>Bank, Restaurant,<br>Movie theater  | A                     | A  | A  | A  | B  | B  | C   |
| COMMERCIAL<br>Community<br>INDUSTRIAL &<br>INSTITUTIONAL | Office building,<br>Research & development<br>Professional office,<br>City office building            | A                     | A  | A  | B  | B  | C  | D   |
| COMMERCIAL<br>Recreation<br>INSTITUTIONAL<br>General     | Amphitheater,<br>Concert hall<br>Auditorium, Meeting<br>hall  | B                     | B  | C  | C  | D  | D  | D   |
| COMMERCIAL<br>Recreation                                 | Children's amusement<br>park, Miniature golf,<br>Go-cart track, Health<br>club, Equestrian<br>center  | A                     | A  | A  | B  | B  | D  | D   |
| COMMERCIAL<br>Community<br>INDUSTRIAL<br>General         | Automobile service<br>station, Auto dealer,<br>Manufacturing,<br>Warehousing,<br>Wholesale, Utilities | A                     | A  | A  | A  | B  | B  | B   |
| INSTITUTIONAL<br>General                                 | Hospital, Church,<br>Library, School<br>classrooms  | A                     | A  | B  | C  | C  | D  | D   |
| OPEN SPACE   | Parks   | A                     | A  | A  | B  | C  | D  | D   |
| OPEN SPACE   | Golf courses, Nature<br>centers, Cemeteries,<br>Wildlife reserves,<br>Wildlife habitat                | A                     | A  | A  | A  | B  | C  | C   |
| AGRICULTURAL   | Agriculture   | A                     | A  | A  | A  | A  | A  | A   |

**Interpretation**

Zone A  
Clearly Compatible

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B  
Normally Compatible

New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C  
Normally Incompatible

New construction or development should normally be discouraged. If new construction or development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features must be included in the design

Zone D  
Clearly Incompatible

New construction or development should generally not be undertaken.



### **Noise Mitigation Measure Definitions**

**Alignment:** In the context of highway noise assessment, the three-dimensional position of the road.

**Barriers:** Any solid material that shields a receiver from a given source of noise. Types of barriers include walls, berms, hills and intervening structures. Most often, the term "noise barrier" refers specifically to sound walls or berms intentionally placed in such a way as to re-direct noise away from receiver locations (e.g., sound walls along a highway).

**Lateral separation:** The horizontal distance between the road and a receiver. With new roadway construction, there is sometimes the flexibility to position the alignment within the right of way in such a way as to maximize the lateral separation (or buffer) between the road (noise source) and the nearest receivers (e.g., residences).

**Vertical Profile:** The path of a roadway in the vertical direction. Roadways can be designed to be below-grade (depressed), above-grade (elevated), or at-grade relative to areas adjacent to the road. Generally, traffic noise levels along depressed roadways are substantially lower than those along roadways that are at grade. Elevated roadways also reduce traffic noise (relative to at-grade conditions) but only within the first few hundred feet of the road.

### **RELATED OBJECTIVE NUMBERS**

The following objectives are related to the Noise Element:

Land Use Element - A-6

Circulation Element - B-2, B-7

Housing Element - C-2

Public Facilities and Services Element - G-1

Integrated Waste Management Element - H-2

Conservation and Open Space Element - L-6

Growth Management Element - M-3

**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

| Roadway Segment                             | <i>Existing Conditions</i>                        |  | <i>2020 Buildout Condition</i>                    |  |
|---|---|--|---|--|
|   | CNEL<br>Noise Level<br>(@ 100 ft<br>from ctrline) | Distance to<br>65 CNEL<br>Noise Contour<br>(in feet) | CNEL<br>Noise Level<br>(@ 100 ft<br>from ctrline) | Distance to<br>65 CNEL<br>Noise Contour<br>(in feet) |
| <b>Alton Parkway</b>                        |   |  |   |  |
| Barranca/Muirlands Blvd. to Jeronimo Rd.    | 71.4  | 267  | 72.0  | 293  |
| Jeronimo Road/Toledo Way                    | 70.7  | 240  | 70.5  | 233  |
| Toledo Way/Irvine Boulevard                 | 66.9  | 134  | 70.0  | 215  |
| Irvine Boulevard/North City Limits          | --  | --   | 71.0  | 251  |
| SR 55/Red Hill Avenue                       | 61.3  | 57   | 69.3  | 193  |
| Red Hill Avenue/Von Karman Avenue           | 66.8  | 132  | 70.2  | 222  |
| Von Karman Avenue/Jamboree Road             | 66.3  | 122  | 70.7  | 240  |
| Jamboree Road/Harvard Avenue                | 67.4  | 145  | 71.5  | 271  |
| Harvard Avenue/Culver Drive                 | 68.9  | 182  | 69.6  | 203  |
| Culver Drive/West Yale Loop                 | 67.7  | 151  | 69.0  | 185  |
| West Yale Loop/Lake Road                    | 68.0  | 158  | 68.7  | 176  |
| Lake Road/Creek Road                        | 69.0  | 185  | 69.4  | 196  |
| Creek Road/East Yale Loop                   | 68.3  | 166  | 69.5  | 200  |
| East Yale Loop/Jeffrey Road                 | 68.2  | 163  | 69.6  | 203  |
| Jeffrey Road/Sand Canyon Avenue             | 68.9  | 182  | 72.3  | 307  |
| Sand Canyon/Future Laguna Canyon Rd.        | 69.4  | 196  | 71.9  | 288  |
| Future (Link)/SR 133                        | 69.4  | 196  | 71.0  | 251  |
| SR 133/Irvine Center Drive                  | 68.6  | 174  | 70.2  | 222  |
| I-5/West Technology Drive                   | 69.1  | 188  | 72.2  | 302  |
| Future Rockfield to Barranca/Muirlands      | 72.8  | 331  | 70.9  | 247  |
| <b>Barranca Parkway/Muirlands Boulevard</b> |   |  |   |  |
| Red Hill Avenue/Von Karman Avenue           | 69.6  | 203  | 72.4  | 311  |
| Von Karman Avenue/Jamboree Road             | 69.2  | 191  | 73.1  | 347  |
| Jamboree Road/Harvard Avenue                | 67.8  | 154  | 70.9  | 247  |
| Harvard Avenue/Culver Drive                 | 68.9  | 182  | 69.5  | 200  |
| Culver Drive/West Yale Loop                 | 67.7  | 151  | 68.3  | 166  |
| West Yale Loop/Lake Road                    | 67.3  | 142  | 68.2  | 163  |
| Lake Road/Creek Road                        | 67.3  | 142  | 68.0  | 158  |
| Creek Road/East Yale Loop                   | 66.7  | 130  | 67.6  | 149  |
| East Yale Loop/Jeffrey Road                 | 66.5  | 126  | 68.8  | 179  |
| Jeffrey Road/Future                         | --  | --   | 69.5  | 200  |
| Future/Sand Canyon Avenue                   | --  | --   | 69.2  | 191  |
| Sand Canyon/Future Laguna Canyon Rd.        | 61.7  | 60   | 71.0  | 251  |
| Future (Link)/SR 133                        | 61.7  | 60   | 69.7  | 206  |
| SR 133/Irvine Center Drive                  | 66.3  | 122  | 69.7  | 206  |
| Irvine Center Drive/I-5                     | 67.2  | 140  | 70.7  | 240  |
| I-5 Freeway/Alton Parkway                   | 69.4  | 196  | 69.8  | 209  |
| Alton Parkway/Bake Parkway                  | 69.2  | 191  | 66.4  | 124  |
| (Continued on the next page)                |   |  |   |  |

**Table F-3****VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|   |      |     |      |     |
|---|------|-----|------|-----|
| <b>Bison Avenue</b>                     |      |     |      |     |
| MacArthur Boulevard/Newport Coast Drive | --   | --  | 69.1 | 188 |
| Newport Coast Drive/California Avenue   | 59.0 | 40  | 65.8 | 113 |
| <b>Bonita Canyon Drive</b>              |      |     |      |     |
| Newport Coast Drive/Culver Drive        | 65.5 | 108 | 71.1 | 255 |
| Culver Drive/Sunnyhill                  | 60.2 | 48  | 66.6 | 128 |
| <b>Bryan Avenue</b>                     |      |     |      |     |
| Culver Drive/Westwood                   | 65.4 | 106 | 66.0 | 117 |
| Westwood/Yale Avenue                    | 63.0 | 74  | 66.0 | 117 |
| Yale Avenue/Eastwood                    | 62.1 | 64  | 65.5 | 108 |
| Eastwood/Jeffrey Road                   | 62.1 | 64  | 65.5 | 108 |
| <b>California Avenue</b>                |      |     |      |     |
| University Drive/Bison Avenue           | 62.7 | 70  | 66.8 | 132 |
| Bison Avenue/Palo Verde Road            | --   | --  | 62.3 | 66  |
| Palo Verde Road/Campus Drive            | --   | --  | 65.8 | 113 |
| Campus Drive/Harvard Avenue             | 61.1 | 55  | 65.7 | 111 |
| <b>Campus Drive</b>                     |      |     |      |     |
| MacArthur Blvd./Von Karman Ave.         | 65.5 | 108 | 67.6 | 149 |
| Von Karman Ave./Jamboree Road           | 65.1 | 102 | 66.6 | 128 |
| Jamboree Road/University Drive          | 68.4 | 169 | 69.2 | 191 |
| University Drive/Culver Drive           | 67.3 | 142 | 70.3 | 226 |
| Culver Drive/Turtle Rock Drive          | 66.9 | 134 | 68.9 | 182 |
| <b>Creek Road</b>                       |      |     |      |     |
| Barranca Parkway/Alton Parkway          | 58.2 | 35  | 68.3 | 166 |
| <b>Culver Drive</b>                     |      |     |      |     |
| Irvine Boulevard/Bryan Avenue           | 65.3 | 105 | 70.3 | 226 |
| Bryan Avenue to I-5/Trabuco Road        | 70.3 | 226 | 71.4 | 267 |
| I-5/Trabuco Road to Walnut Avenue       | 69.2 | 191 | 72.0 | 293 |
| Walnut Avenue/Irvine Center Drive       | 71.4 | 267 | 71.5 | 271 |
| Irvine Center Drive/Warner Avenue       | 71.9 | 288 | 72.7 | 326 |
| Warner Avenue/Barranca Parkway          | 71.6 | 275 | 72.2 | 302 |
| Barranca Parkway/Alton Parkway          | 70.9 | 247 | 72.1 | 297 |
| Alton Parkway/Main Street               | 71.5 | 271 | 72.2 | 302 |
| Main Street/San Diego Freeway (I-405)   | 71.6 | 275 | 71.9 | 288 |
| San Diego Freeway (I-405)/Michelson Dr. | 70.5 | 233 | 72.0 | 293 |
| Michelson Drive/University Drive        | 70.1 | 219 | 71.8 | 284 |
| University Drive/Harvard Avenue         | 68.8 | 179 | 71.3 | 263 |
| Harvard Avenue/Campus Drive             | 67.5 | 147 | 70.2 | 222 |
| Campus Drive/Bonita Canyon Drive        | 62.9 | 72  | 70.3 | 226 |

(Continued on the next page)

**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|   |      |     |      |     |
|---|------|-----|------|-----|
| <b>East Yale Loop</b>                   |      |     |      |     |
| Yale Avenue/Barranca Parkway            | 65.4 | 106 | 63.4 | 78  |
| Barranca Parkway/Alton Parkway          | 64.6 | 94  | 64.2 | 88  |
| Alton Parkway/West Yale Loop            | 65.8 | 113 | 66.1 | 118 |
| <b>Ford Road</b>                        |      |     |      |     |
| MacArthur Boulevard/San Miguel Drive    | 66.5 | 126 | 65.5 | 108 |
| San Miguel Drive/Newport Coast Drive    | --   | --  | 68.2 | 163 |
| <b>Harvard Avenue</b>                   |      |     |      |     |
| Walnut Avenue/Irvine Center Drive       | 64.2 | 88  | 66.1 | 118 |
| Irvine Center Drive/Warner Avenue       | 66.9 | 134 | 65.2 | 103 |
| Warner Avenue/Barranca Parkway          | 66.8 | 132 | 65.9 | 115 |
| Barranca Parkway/Alton Parkway          | 66.5 | 126 | 64.4 | 91  |
| Alton Parkway/Main Street               | 66.7 | 130 | 69.7 | 206 |
| Main Street/Michelson Drive             | 66.7 | 130 | 70.4 | 229 |
| Michelson Drive/University Drive        | 67.0 | 136 | 67.5 | 147 |
| University Drive/California Avenue      | 65.1 | 102 | 68.0 | 158 |
| <b>Irvine Center Drive</b>              |      |     |      |     |
| Harvard Avenue/Culver Drive             | 68.6 | 174 | 71.2 | 259 |
| Culver Drive/Yale Avenue                | 69.4 | 196 | 71.6 | 275 |
| Yale Avenue/Jeffrey Road                | 68.1 | 161 | 71.4 | 267 |
| Jeffrey Road/Future                     | 69.6 | 203 | 71.2 | 259 |
| Future/Sand Canyon Avenue               | 69.8 | 209 | 71.1 | 255 |
| Sand Canyon Avenue/Barranca Parkway     | 69.1 | 188 | 73.5 | 369 |
| Barranca Parkway/Alton Parkway          | 67.2 | 140 | 71.9 | 288 |
| Alton Parkway/San Diego Freeway (I-405) | 70.7 | 240 | 70.6 | 236 |
| Future/Bake Parkway                     | 73.3 | 358 | 74.4 | 423 |
| <b>Irvine Boulevard</b>                 |      |     |      |     |
| Culver Drive/Yale Avenue                | 70.5 | 233 | 72.4 | 311 |
| Yale Avenue/Jeffrey Road                | 70.3 | 226 | 71.7 | 280 |
| West of Alton Parkway                   | 70.5 | 233 | 71.2 | 259 |
| Alton Parkway/Bake Parkway              | 70.1 | 219 | 68.8 | 179 |
| <b>Jamboree Road</b>                    |      |     |      |     |
| San Diego Freeway (I-405)/Michelson Dr. | 72.6 | 321 | 73.7 | 380 |
| Michelson Drive/Campus Drive            | 72.1 | 297 | 72.5 | 316 |
| Santa Ana Freeway (I-5)/Walnut Avenue   | 72.0 | 293 | 73.4 | 363 |
| Walnut Avenue/Railroad Tracks           | 71.9 | 288 | 76.8 | 612 |
| (Continued on the next page)            |      |     |      |     |

**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|  |      |     |      |     |
|--|------|-----|------|-----|
| <b>Jamboree Road (Continued)</b>         |      |     |      |     |
| Warner Avenue/Barranca Parkway           | 71.5 | 271 | 76.9 | 621 |
| Barranca Parkway/Alton Parkway           | 69.6 | 203 | 73.9 | 392 |
| Alton Parkway/Main Street                | 71.4 | 267 | 73.2 | 352 |
| Main Street/San Diego Freeway (I-405)    | 72.4 | 311 | 73.1 | 347 |
| <b>Jeffrey Road/University Drive</b>     |      |     |      |     |
| Irvine Boulevard/Bryan Avenue            | 68.6 | 174 | 69.5 | 200 |
| Trabuco Road/Santa Ana Freeway (I-5)     | 69.4 | 196 | 69.7 | 206 |
| Santa Ana Freeway (I-5)/Walnut Avenue    | 69.4 | 196 | 70.1 | 219 |
| Walnut Avenue/Irvine Center Drive        | 70.1 | 219 | 72.1 | 297 |
| Irvine Center Drive/Barranca Parkway     | 70.7 | 240 | 71.9 | 288 |
| Barranca Parkway/Alton Parkway           | 69.3 | 193 | 71.5 | 271 |
| Alton Parkway/San Diego Freeway (I-405)  | 71.7 | 280 | 73.2 | 352 |
| San Diego Freeway (I-405)/Michelson Dr.  | 71.3 | 263 | 70.7 | 240 |
| Michelson Drive/Ridgeline Drive          | 69.7 | 206 | 71.7 | 280 |
| Ridgeline Drive/Yale Avenue              | 68.4 | 169 | 68.7 | 176 |
| Yale Avenue/Culver Drive                 | 70.0 | 215 | 70.1 | 219 |
| Culver Drive/Harvard Avenue              | 69.0 | 185 | 71.3 | 263 |
| Harvard Avenue/Campus Drive              | 69.3 | 193 | 72.8 | 331 |
| Campus Drive/MacArthur Boulevard         | 68.5 | 171 | 72.7 | 326 |
| <b>Jeronimo Road</b>                     |      |     |      |     |
| Alton Parkway/Bake Parkway               | 66.1 | 118 | 67.7 | 151 |
| <b>Laguna Canyon Road</b>                |      |     |      |     |
| Barranca Parkway/Alton Parkway           | 62.7 | 70  | 69.0 | 185 |
| Alton Parkway/Laguna Freeway (SR 133)    | 62.7 | 70  | 71.5 | 271 |
| Laguna Freeway (SR 133)/Lake Forest Dr.  | --   | --  | 69.0 | 185 |
| Laguna Freeway (SR 133)/Bake Parkway     | --   | --  | 74.2 | 411 |
| <b>Laguna Freeway (SR 133)</b>           |      |     |      |     |
| Santa Ana Freeway (I-5)/Barranca Parkway | 69.6 | 203 | 77.9 | 724 |
| San Diego Fwy (I-405)/Laguna Canyon Rd.  | 71.2 | 259 | 76.0 | 541 |
| <b>Lake Forest Drive</b>                 |      |     |      |     |
| Laguna Canyon Road/Future Bake Parkway   | --   | --  | 70.6 | 236 |
| Future Bake Parkway/East City Limits     | --   | --  | 71.8 | 284 |
| <b>Lake Road</b>                         |      |     |      |     |
| Barranca Parkway/Alton Parkway           | 61.9 | 62  | 71.5 | 271 |
| <b>MacArthur Boulevard</b>               |      |     |      |     |
| Costa Mesa Freeway (SR 55)/Red Hill Ave. | 70.4 | 229 | 72.2 | 302 |
| Red Hill Avenue/Main Street              | 68.9 | 182 | 73.2 | 352 |
| <b>(Continued on the next page)</b>      |      |     |      |     |

**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|   |      |     |      |     |
|---|------|-----|------|-----|
| <b>MacArthur Boulevard (Continued)</b>    |      |     |      |     |
| Main Street/San Diego Freeway (I-405)     | 71.6 | 275 | 74.4 | 423 |
| San Diego Freeway (I-405)/Michelson Dr.   | 70.1 | 219 | 71.7 | 280 |
| Michelson Drive/Campus Drive              | 69.8 | 209 | 75.1 | 471 |
| Jamboree Road/University Drive            | 68.4 | 169 | 75.1 | 471 |
| University Drive/Newport Coast Drive      | 73.9 | 392 | 72.8 | 331 |
| Newport Coast Drive/Bison Avenue          | 74.4 | 423 | 73.9 | 392 |
| Bison Avenue/Ford Road                    | 74.5 | 430 | 74.0 | 398 |
| <b>Main Street</b>                        |      |     |      |     |
| SR 55/Red Hill Avenue                     | 67.0 | 136 | 71.5 | 271 |
| Red Hill Avenue/MacArthur Boulevard       | 67.7 | 151 | 71.5 | 271 |
| MacArthur Blvd./Von Karman Avenue         | 69.2 | 191 | 71.6 | 275 |
| Von Karman Avenue/Jamboree Road           | 68.1 | 161 | 71.7 | 280 |
| Jamboree Road/Harvard Avenue              | 67.1 | 138 | 69.2 | 191 |
| Harvard Avenue/Culver Drive               | 66.1 | 118 | 67.5 | 147 |
| Culver Drive/West Yale Loop               | 65.0 | 100 | 64.4 | 91  |
| <b>Michelson Drive</b>                    |      |     |      |     |
| MacArthur Blvd./Von Karman Avenue         | 66.3 | 122 | 65.1 | 102 |
| Von Karman Avenue/Jamboree Road           | 65.4 | 106 | 68.0 | 158 |
| Jamboree Road/Harvard Avenue              | 66.7 | 130 | 71.8 | 284 |
| Harvard Avenue/Culver Drive               | 66.1 | 118 | 69.1 | 188 |
| Culver Drive/West Yale Loop               | 63.1 | 75  | 63.1 | 75  |
| Yale Avenue/University Drive              | 62.3 | 66  | 63.2 | 76  |
| Sand Canyon Ave./Laguna Canyon Road       | --   | --  | 63.1 | 75  |
| <b>Red Hill Avenue</b>                    |      |     |      |     |
| Barranca Parkway/Alton Parkway            | 69.5 | 200 | 72.6 | 321 |
| Alton Parkway/MacArthur Boulevard         | 70.7 | 240 | 72.8 | 331 |
| MacArthur Boulevard/Main Street           | 66.8 | 132 | 69.2 | 191 |
| Main Street/San Diego Freeway (I-405)     | 67.4 | 145 | 72.0 | 293 |
| <b>Ridgeline Drive</b>                    |      |     |      |     |
| University Drive/Turtle Rock Drive        | 66.9 | 134 | 66.6 | 128 |
| <b>Rockfield Boulevard</b>                |      |     |      |     |
| Alton Parkway/Thomas                      | --   | --  | 65.4 | 106 |
| Thomas/Bake Parkway                       | 60.9 | 53  | 65.4 | 106 |
| Bake Parkway/East City Limits             | 68.7 | 176 | 70.7 | 240 |
| <b>Sand Canyon Avenue</b>                 |      |     |      |     |
| North of Marine Way                       | 66.9 | 134 | 68.6 | 174 |
| Prop. Laguna Canyon Fwy/Irvine Center Dr. | 65.0 | 100 | 68.5 | 171 |
| Irvine Center Drive/Barranca Parkway      | 66.4 | 124 | 68.6 | 174 |
| Barranca Parkway/Alton Parkway            | 66.2 | 120 | 68.8 | 179 |
| Alton Parkway/San Diego Freeway (I-405)   | 66.8 | 132 | 72.0 | 293 |
| San Diego Fwy (I-405)/Fut. Michelson Dr.  | --   | --  | 67.4 | 145 |
| (Continued on the next page)              |      |     |      |     |

**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|                                   |      |     |      |     |
|-----------------------------------|------|-----|------|-----|
| <b>Trabuco Road</b>               |      |     |      |     |
| Culver Drive/Yale Avenue          | 67.8 | 154 | 68.1 | 161 |
| Yale East to City Limit           | 64.0 | 86  | 67.9 | 156 |
| <b>Toledo Way</b>                 |      |     |      |     |
| Alton Parkway/Bake Parkway        | 66.1 | 118 | 65.0 | 100 |
| <b>Turtle Rock Drive</b>          |      |     |      |     |
| Campus Drive/Ridgeline Drive      | 63.2 | 76  | 62.6 | 69  |
| Ridgeline Drive/Sunnyhill         | 63.2 | 76  | 61.1 | 55  |
| Sunnyhill/California Avenue       | 64.6 | 94  | 65.3 | 105 |
| <b>Von Karman Avenue</b>          |      |     |      |     |
| Barranca Parkway/Alton Parkway    | 66.0 | 117 | 72.4 | 311 |
| Alton Parkway/Main Street         | 66.9 | 134 | 69.0 | 185 |
| Main Street/Michelson Drive       | 66.5 | 126 | 71.8 | 284 |
| Michelson Drive/Campus Drive      | 66.0 | 117 | 68.9 | 182 |
| <b>Walnut Avenue</b>              |      |     |      |     |
| Myford Road/Jamboree Road         | 66.6 | 128 | 71.4 | 267 |
| Jamboree Road/Harvard Avenue      | 65.6 | 110 | 70.8 | 244 |
| Harvard Avenue/Culver Drive       | 66.0 | 117 | 68.2 | 163 |
| Culver Drive/Yale Avenue          | 66.6 | 128 | 68.4 | 169 |
| Yale Avenue/Jeffrey Road          | 64.9 | 98  | 67.1 | 138 |
| <b>Warner Avenue</b>              |      |     |      |     |
| Jamboree Road/Harvard Avenue      | 58.2 | 35  | 64.3 | 90  |
| Harvard Avenue/Culver Drive       | --   | --  | 63.9 | 84  |
| Culver Drive/Yale Avenue          | 61.7 | 60  | 64.5 | 93  |
| <b>West Yale Loop</b>             |      |     |      |     |
| East Yale Loop/Main Street        | 66.4 | 124 | 66.9 | 134 |
| Main Street/Alton Parkway         | 64.4 | 91  | 65.8 | 113 |
| Alton Parkway/Barranca Parkway    | 62.5 | 68  | 63.0 | 74  |
| Barranca Parkway/Warner Avenue    | 63.7 | 82  | 62.7 | 70  |
| Warner Avenue/Yale Avenue         | 64.5 | 93  | 62.7 | 70  |
| <b>Yale Avenue</b>                |      |     |      |     |
| North of Irvine Boulevard         | 64.8 | 97  | 65.2 | 103 |
| Irvine Boulevard/Bryan Avenue     | 64.0 | 86  | 64.0 | 86  |
| Bryan Avenue to I-5/Trabuco Road  | 65.1 | 102 | 65.1 | 102 |
| I-5/Trabuco Road to Walnut Avenue | 64.1 | 87  | 64.1 | 87  |
| Walnut Avenue/Irvine Center Drive | 66.1 | 118 | 64.4 | 91  |
| Irvine Center Drive/Yale Loop     | 63.4 | 78  | 64.1 | 87  |
| Yale Loop/Michelson Drive         | --   | --  | 62.9 | 72  |
| Michelson Drive/University Drive  | 55.6 | 24  | 59.5 | 43  |
| (Continued on the next page)      |      |     |      |     |

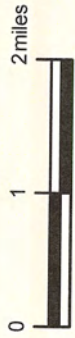
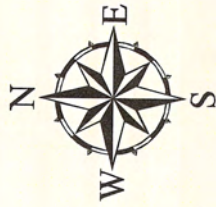
**Table F-3**  
**VEHICULAR TRAFFIC NOISE LEVEL AND NOISE CONTOUR COMPARISON**

|                                   |      |     |               |     |
|-----------------------------------|------|-----|---------------|-----|
| <b>I-405 (San Diego Freeway)</b>  |      |     |               |     |
| SR-55/MacArthur Boulevard         | 74.8 | 450 | 76.1          | 550 |
| MacArthur Boulevard/Jamboree Road | 74.8 | 450 | 76.3          | 567 |
| Jamboree Road/Culver Drive        | 74.8 | 450 | 76.0          | 541 |
| Culver Drive/Jeffrey Road         | 74.3 | 417 | 76.0          | 541 |
| Jeffrey Road/Sand Canyon Avenue   | 73.8 | 386 | 75.9          | 533 |
| Sand Canyon Avenue/SR-133         | 73.8 | 386 | 75.6          | 509 |
| SR-133/Irvine Center Drive        | 73.2 | 352 | 73.7          | 380 |
| Irvine Center Drive/I-5           | 72.5 | 316 | 72.9          | 336 |
| <b>I-5 (Santa Ana Freeway)</b>    |      |     |               |     |
| Jamboree Road/Culver Drive        | 72.7 | 326 | 77.1          | 641 |
| Culver Drive/Jeffrey Road         | 72.7 | 326 | 76.8          | 612 |
| Jeffrey Road/Sand Canyon Avenue   | 72.8 | 331 | 76.9          | 621 |
| Sand Canyon Avenue/SR-133         | 72.8 | 331 | 76.3          | 567 |
| SR-133/Alton Parkway              | 72.6 | 321 | 76.1          | 550 |
| Alton Parkway/I-405               | 72.1 | 297 | 75.8          | 525 |
| I-405/Lake Forest Drive           | 75.0 | 464 | 76.2          | 558 |
| <b>SR-55 (Costa Mesa Freeway)</b> |      |     |               |     |
| I-405/MacArthur Boulevard         | 73.9 | 392 | not available |     |

*Note: (--) denotes undeveloped roadway. Traffic estimates from City of Irvine were used as inputs to the model.*

*SOURCE: Environmental Science Associates, 1996.*





TUSTIN

SANTA ANA

LAKE FOREST

LAGUNA BEACH

NEWPORT BEACH

Although the City has detached all of Planning Area 26 and portions of Planning Area 27, these areas are subject to agreements between the City of Irvine, the Irvine Company and the City of Newport Beach



# City of Irvine General Plan

Figure F-1

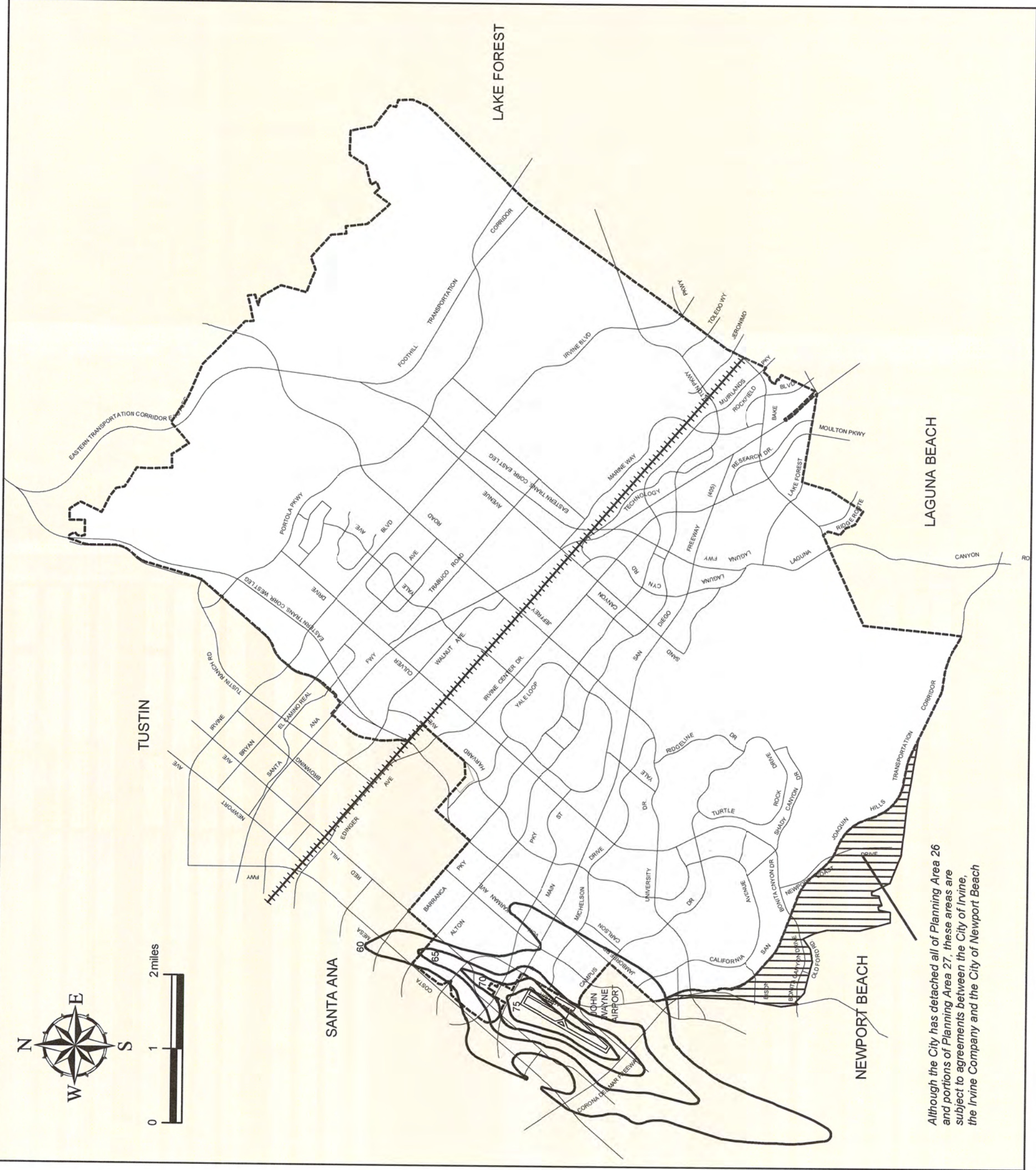
## AIRCRAFT NOISE

### LEGEND

-----  
City Sphere  
of Influence

—————  
Aircraft Noise  
Contours  
expressed as CNEL  
(Community Noise Equivalent Level)

\* This exhibit depicts the former noise contours for the now closed MCAS Tustin for historical purposes; and, the existing noise contours for John Wayne airport



## **APPENDIX 4.2**

### City of Irvine Noise Ordinance

[Irvine, California, Code of Ordinances](#) >> [TITLE 6 - PUBLIC WORKS](#) >> [Division 8 - POLLUTION](#) >>  
[CHAPTER 2. - NOISE](#) >>

[CHAPTER 2. - NOISE](#)

[\[77\]](#)

[Sec. 6-8-201. - Declaration of policy.](#)  
[Sec. 6-8-202. - Definitions.](#)  
[Sec. 6-8-203. - Noise level measurement criteria.](#)  
[Sec. 6-8-204. - General provision.](#)  
[Sec. 6-8-205. - Special provisions.](#)  
[Sec. 6-8-206. - Reserved.](#)  
[Sec. 6-8-207. - Enforcement.](#)  
[Sec. 6-8-208. - Waiver procedure.](#)  
[Sec. 6-8-209. - Appeals.](#)

**[Sec. 6-8-201. - Declaration of policy.](#)**

The City Council has adopted the following regulations in order to control unnecessary, excessive and annoying noise in the City of Irvine. The provisions of this chapter are applicable to nontransportation-related stationary noise sources.

(Code 1976, § VI.K-301; Ord. No. 84-18, 9-11-84)

**[Sec. 6-8-202. - Definitions.](#)**

The following definitions are provided to clarify words, phrases and terms used in this chapter.

*Ambient noise level:* The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

*Cumulative period:* An additive period of time composed of individual time segments which may be continuous or interrupted.

*Decibel (dB):* A unit of noise measurement indicating the loudness of sound, based on logarithmic (base 10) scale.

*Emergency work:* Any mechanical device, apparatus or equipment which is used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

*Grading:* Any excavating or filling of earth material or any combination thereof conducted to prepare a site for construction or the placement of the improvements thereon.

*Impact noises:* The noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

*Noise level:* The "A" weighted sound pressure level in decibels obtained by using a sound level meter. The "A" weighted discriminates against the lower and higher frequencies according to a relationship with the sensitivity of the human ear. The unit of measurement is designated as dB(A).

*Predominant tone noise:* A noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.



*Stationary noise source:* The source which is often referred to as "fixed source" (non-transportation-related) including but not limited to mechanical electric equipment, various power tools construction, commercial, industrial and agricultural activity and animal noise.

(Code 1976, § VI.K-302; Ord. No. 84-18, 9-11-84)

### **Sec. 6-8-203. - Noise level measurement criteria.**

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter. The location selected for measuring exterior noise levels shall be anywhere on the affected property. The interior noise measurement shall be made at a point in the affected unit at least four feet from the wall, ceiling or floor nearest the noise source.

(Code 1976, § VI.K-303; Ord. No. 84-18, 9-11-84)

### **Sec. 6-8-204. - General provision.**

- A. *Designated noise zones.* The properties hereinafter described, whether within or without the City, are hereby assigned to the following noise zones:
1. *Noise zone 1:* All hospitals, libraries, churches, schools and residential properties.
  2. *Noise zone 2:* All professional office and public institutional properties.
  3. *Noise zone 3:* All commercial properties excluding professional office properties.
  4. *Noise zone 4:* All industrial properties.
- B. *Exterior and interior noise standards.*
1. The following noise standards, unless otherwise specifically indicated, shall apply to all property within a designated noise zone.

#### NOISE STANDARDS dB(A)

*Noise Levels for a Period Not  
Exceeding (minutes/hour)*

| Noise Zone | Time Period          | 30 | 15 | 5               | 1               | 0 (anytime) |
|------------|----------------------|----|----|-----------------|-----------------|-------------|
| 1 Exterior | 7:00 a.m.—10:00 p.m. | 55 | 60 | 65 <sup>1</sup> | 70              | 75          |
|            | 10:00 p.m.—7:00 a.m. | 50 | 55 | 60              | 65 <sup>1</sup> | 70          |
| Interior   | 7:00 a.m.—10:00 p.m. | —  | —  | 55              | 60              | 65          |
|            | 10:00 p.m.—7:00 a.m. | —  | —  | 45              | 50              | 55          |
| 2 Exterior | Any time             | 55 | 60 | 65              | 70              | 75          |
| Interior   | Any time             | —  | —  | 55              | 60              | 65          |
| 3 Exterior | Any time             | 60 | 65 | 70              | 75              | 80          |
| Interior   | Any time             | —  | —  | 55              | 60              | 65          |
| 4 Exterior | Any time             | 70 | 75 | 80              | 85              | 90          |
| Interior   | Any time             | —  | —  | 55              | 60              | 65          |

- 1 This standard does not apply to multi-family residence private balconies. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

.....

2. It shall be unlawful for any person at any location within the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any property within designated noise zones either within or without the City to exceed the applicable noise standard.
- 3.

Each of the noise standards specified above shall be reduced by five dB(A) for impact, or predominant tone noise or for noises consisting of speech or music.

4. In the event that the noise source and the affected property are within different noise zones, the noise standards of the affected property shall apply.

(Code 1976, § VI.K-304; Ord. No. 84-18, 9-11-84; Ord. No. 05-06, § 2, 2-22-05)

### **Sec. 6-8-205. - Special provisions.**

- A. Construction activities and agricultural operations may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading, or transfer of materials, equipment service, maintenance of any devices or appurtenances for or within any construction project in the City shall not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take impact upon the community into consideration. No construction activity and agricultural will be permitted outside of these hours except in emergencies including maintenance work on the City rights-of-way that might be required.

Deliveries to or pickups from any commercial property sharing a property line with any residential property may occur between 7:00 a.m. and 10:00 p.m. daily. No deliveries to or pickups from any such properties shall occur outside of these hours.

- B. Maintenance of real property operations may exceed the noise standards between 7:00 a.m. and 7:00 p.m. on any day except Sundays, or between 9:00 a.m. and 6:00 p.m. on Sundays or a federal holiday.
- C. The use of leaf blowers shall be regulated as follows:
  1. *Definition of leaf blower.* Leaf blowers are defined as portable power equipment that is powered by fuel or electricity and used in any landscape maintenance, construction, property repair, or property maintenance for the purpose of blowing, dispersing or redistributing dust, dirt, leaves, grass clippings, cuttings and trimmings from trees and shrubs or other debris.
  2. *Limitations on use.*
    - a. All leaf blowers shall be equipped with a permanently installed limiter that restricts the individual equipment motor performance to half throttle speed or less, and will produce not more than 70 decibels db(A) measured at the midpoint of a wall area 20 feet long and ten feet high and at a horizontal distance 50 feet away from the midpoint of the wall, or not more than 76 db(A) at a horizontal distance of 25 feet using a sound level meter set at level A.
    - b. Each individual leaf blower shall be tested and certified for use by the City of Irvine or its designated representative. Each individual leaf blower shall bear the label of required approval in a visible location on the equipment prior to use and at all times during use. A fee for the City to recover all costs connected with equipment approvals shall be charged in an amount set by City resolution.
    - c. The use of leaf blowers is prohibited except between the hours of 8:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturday.
    - d. Leaf blower operations shall not cause dirt, dust, debris, leaves, grass clippings, cuttings or trimmings from trees or shrubs to be blown or deposited on any adjacent or other parcel of land, lot, or public right-of-way/property other than the parcel, land, or lot upon which the leaf blower is being operated. Deposits of dirt, dust, leaves, grass clippings, debris, cuttings or trimmings from trees or shrubs shall be removed and disposed of in a sanitary manner which will prevent dispersment by wind, vandalism or similar means within six hours of deposit by the user or property occupant.
    - e. Leaf blowers shall not be operated within a horizontal distance of ten feet of any operable window, door, or mechanical air intake opening or duct.
    - f. No person using leaf blowers shall exceed noise limitations set by section 6-8-204 of the City Code of Ordinances.
  3. *Education.*
    - a. Each person operating an individual leaf blower is required to complete not less than one training session of content and time approved by the City of Irvine Administrative Authority prior to operation of leaf blower equipment. Training and qualification shall be required for certification at least every two years for each individual equipment user.
    - b. The equipment operator shall carry certification of the training and qualification at all times during equipment use and make it available upon demand. Failure to abide by the use requirements contained in this Code and/or the certification training provided will be cause for the City of Irvine to revoke such certification.

- c. *Exception:* An individual residential property occupant operating a single leaf blower himself or herself in a manner confined to his or her own property shall be excepted from the education requirements set forth by this subsection.
  - 4. *Fees.* A fee for the City to recover all costs connected with training, testing, certification and enforcement shall be charged in an amount set by City Council resolution.
- D. The following activities shall be exempted from the provision of this chapter:
  - 1. School bands, school athletic and school entertainment events, provided said events are conducted on school property or authorized by special permit from the City.
  - 2. Activities otherwise lawfully conducted on public parks, public playgrounds and public or private school grounds.
  - 3. Any mechanical device, apparatus or equipment which is utilized for emergency work, pest control, and protection or harvest of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.
  - 4. Any activity or equipment to the extent that design regulation thereby has been preempted by State or federal law.

The Chief Building Official or his or her duly authorized representative and City police shall enforce where necessary the provisions of this chapter. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter which such person is engaged in the performance of his or her duty.

(Code 1976, § VI.K-305; Ord. No. 84-18, 9-11-84; Ord. No. 88-11, §§ 1, 2, 5-24-88; Ord. No. 90-2, § 1, 2-13-90; Ord. No. 90-7, § 1, 4-10-90; Ord. No. 05-16, § 2, 7-12-05)

#### **Sec. 6-8-206. - Reserved.**

#### **Sec. 6-8-207. - Enforcement.**

The Chief Building Official or his or her duly authorized representative shall enforce the provisions of this chapter. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his or her duty.

(Code 1976, § VI.K-306; Ord. No. 84-18, 9-11-84)

#### **Sec. 6-8-208. - Waiver procedure.**

- A. The owner or operator of a noise source which violates any of the provisions of this chapter may apply for temporary waiver with the Chief Building Official. Any waiver granted shall take impact upon the community into consideration and state why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee as listed in the City Council resolution for variances where deemed appropriate and necessary by the City administrative authority.
- B. A separate application shall be filed for each noise source; provided, however, that several sources under common ownership or several sources on a single property may be combined into one application.
- C. An applicant for a waiver shall remain subject to prosecution under the terms of this chapter until a waiver is granted.
- D. Within 60 days of receipt of an appeal, the City Council shall either affirm, modify or reverse the decision of the Chief Building Official at a duly notified public hearing.

(Code 1976, § VI.K-307; Ord. No. 84-18, 9-11-84; Ord. No. 90-7, § 2, 4-10-90)

#### **Sec. 6-8-209. - Appeals.**

- A. The decision of the Chief Building Official on waiver applications may be appealed to the City Council. Appeals shall be filed with the City Clerk and shall be accompanied by a letter stating the reason for the appeal.
- B. An appeal shall be accompanied by a deposit/fee of \$150 to be updated on an annual basis by City Council resolution.
- C. An appeal shall be filed within 15 days of the decision of the Chief Building Official.
- D.

Within 60 days of receipt of an appeal, the City Council shall either affirm, modify or reverse the decision of the Chief Building Official at a duly notified public hearing.

*(Code 1976, § VI.K-308; Ord. No. 84-18, 9-11-84)*

---

FOOTNOTE(S):

<sup>(77)</sup> **Editor's note**— Prior to amendment by Ord. No. 84-18, adopted Sept. 11, 1984, the provisions of this chapter derived from Ord. No. 136, §§ 2—13, adopted March 25, 1975. [\(Back\)](#)

## **APPENDIX 7.1**

2011 Approved Project

Off-Site Transportation Noise Model Printouts



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ada    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                             |     |         |       |       |
|--|----------------|--|-----|---------|-------|-------|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b>  |     |         |       |       |
| Average Daily Traffic (Adt):   | 2,200 vehicles | Autos: 15                                      |     |         |       |       |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                    |     |         |       |       |
| Peak Hour Volume:  | 220 vehicles   | Heavy Trucks (3+ Axles): 15                    |     |         |       |       |
| Vehicle Speed:   | 55 mph         | <b>Vehicle Mix</b>                             |     |         |       |       |
| Near/Far Lane Distance:  | 52 feet        |  |     |         |       |       |
| <b>Site Data</b>   |                | VehicleType                                    | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |                | Autos: 77.5% 12.9% 9.6% 97.42%                 |     |         |       |       |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%          |     |         |       |       |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%           |     |         |       |       |
|  |                | <b>Noise Source Elevations (in feet)</b>       |     |         |       |       |
|  |                | Autos: 2.000                                   |     |         |       |       |
|  |                | Medium Trucks: 4.000                           |     |         |       |       |
|  |                | Heavy Trucks: 8.006      Grade Adjustment: 0.0 |     |         |       |       |
|  |                | <b>Lane Equivalent Distance (in feet)</b>      |     |         |       |       |
|  |                | Autos: 96.607                                  |     |         |       |       |
|  |                | Medium Trucks: 96.566                          |     |         |       |       |
| Heavy Trucks: 96.608   |                |  |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -9.40        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -26.64       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -30.59       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.8          | 54.9    | 53.1        | 47.1      | 55.7 | 56.3 |
| Medium Trucks: | 50.2          | 48.7    | 42.3        | 40.8      | 49.2 | 49.5 |
| Heavy Trucks:  | 50.2          | 48.8    | 39.8        | 41.0      | 49.4 | 49.5 |
| Vehicle Noise: | 58.4          | 56.6    | 53.6        | 48.8      | 57.3 | 57.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 14     | 31     | 66     | 143    |
| CNEL: | 15     | 33     | 71     | 154    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.05         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.18       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.14       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.0        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.2        | 53.7      | 62.1 | 62.4 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.3 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 224    | 483    | 1,040  |
| CNEL: | 112    | 241    | 519    | 1,119  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.49         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.75       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.70       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.4      | 69.1 | 69.7 |
| Medium Trucks: | 63.5          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 516    | 1,112  |
| CNEL: | 120    | 258    | 555    | 1,196  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 59,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,930 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.91         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.33       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.29       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.8      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.5        | 55.8      | 64.1 | 64.3 |
| Vehicle Noise: | 73.1          | 71.4    | 68.4        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 298    | 641    | 1,382  |
| CNEL: | 149    | 320    | 690    | 1,487  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: n/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 59,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,980 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.29       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.25       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 645    | 1,390  |
| CNEL: | 150    | 322    | 694    | 1,495  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 65,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 6,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 5.36         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.88       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.83       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.4        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.4          | 63.9    | 57.5        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.4          | 64.0    | 55.0        | 56.2      | 64.6 | 64.7 |
| Vehicle Noise: | 73.6          | 71.8    | 68.9        | 64.0      | 72.6 | 73.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 148    | 319    | 688    | 1,481  |
| CNEL: | 159    | 343    | 740    | 1,594  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: s/o I-5 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,330 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.79       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.75       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 277    | 597    | 1,287  |
| CNEL: | 138    | 298    | 643    | 1,385  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: s/o Paseo de Valencia    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 46,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,600 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.81         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.43       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.39       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.8        | 60.7      | 69.4 | 70.0 |
| Medium Trucks: | 63.9          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.0          | 70.3    | 67.3        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 251    | 542    | 1,167  |
| CNEL: | 126    | 270    | 583    | 1,255  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.    Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 44,600 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,460 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.67         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.52       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 531    | 1,143  |
| CNEL: | 123    | 265    | 571    | 1,230  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Aliso Creek Rd.    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,850 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.26         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.98       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.93       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.4      | 64.0 | 64.6 |
| Medium Trucks: | 58.6          | 57.1    | 50.8        | 49.2      | 57.7 | 57.9 |
| Heavy Trucks:  | 59.1          | 57.6    | 48.6        | 49.8      | 58.2 | 58.3 |
| Vehicle Noise: | 66.8          | 65.0    | 62.0        | 57.2      | 65.7 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 241    | 519    |
| CNEL: | 56     | 120    | 259    | 558    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,690 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.14       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.10       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.3        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 426    | 918    |
| CNEL: | 99     | 213    | 459    | 989    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 28,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,890 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.79         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.45       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.41       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.4          | 60.0    | 50.9        | 52.2      | 60.5 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.8        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 171    | 369    | 796    |
| CNEL: | 86     | 184    | 397    | 856    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o W. Yale Loop    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.63         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.60       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.56       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.4 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 361    | 778    |
| CNEL: | 84     | 180    | 388    | 836    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Lake Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.1 |
| Medium Trucks: | 60.9          | 59.4    | 53.1        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.4    | 64.4        | 59.5      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 346    | 746    |
| CNEL: | 80     | 173    | 372    | 802    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Creek Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 25,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.21         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.03       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.99       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 67.9 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 338    | 728    |
| CNEL: | 78     | 169    | 364    | 784    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,020 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.98         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.26       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.22       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.4      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.7 | 60.9 |
| Vehicle Noise: | 69.7          | 68.0    | 65.0        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 380    | 820    |
| CNEL: | 88     | 190    | 409    | 882    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Jeffrey Rd. and Royal Oak    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.91         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.33       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.29       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 323    | 695    |
| CNEL: | 75     | 161    | 347    | 748    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Royal Oak and Valley Oak    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.42         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.82       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.77       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.5        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 139    | 300    | 645    |
| CNEL: | 69     | 150    | 322    | 694    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: w/o Sand Canyon Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.02         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.22       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.17       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.3        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.2          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.6    | 64.8        | 59.8      | 68.4 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 361    | 778    |
| CNEL: | 84     | 181    | 389    | 838    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 3,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.84         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.40       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.0 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.5    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 222    | 477    | 1,028  |
| CNEL: | 111    | 239    | 514    | 1,108  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,910 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.01        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.21       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.1      | 58.6 | 58.8 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.1        | 50.4      | 58.7 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.0        | 58.2      | 66.7 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 60     | 130    | 280    | 604    |
| CNEL: | 65     | 140    | 302    | 650    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Pacifica and Banting    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.21         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.03       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.98       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.7        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 59.8          | 58.4    | 49.4        | 50.6      | 59.0 | 59.1 |
| Vehicle Noise: | 68.0          | 66.2    | 63.3        | 58.4      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 135    | 290    | 625    |
| CNEL: | 67     | 145    | 312    | 672    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: w/o Meridian    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.34        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.58       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.54       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.8          | 63.9    | 62.2        | 56.1      | 64.7 | 65.4 |
| Medium Trucks: | 59.2          | 57.7    | 51.4        | 49.8      | 58.3 | 58.5 |
| Heavy Trucks:  | 59.3          | 57.8    | 48.8        | 50.1      | 58.4 | 58.5 |
| Vehicle Noise: | 67.4          | 65.7    | 62.7        | 57.8      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 57     | 124    | 266    | 574    |
| CNEL: | 62     | 133    | 287    | 618    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Meridian and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.65        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.89       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 67.0    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 702    |
| CNEL: | 76     | 163    | 351    | 756    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Enterprise and Gateway Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 37,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,720 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.69       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 245    | 529    | 1,139  |
| CNEL: | 123    | 264    | 570    | 1,227  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Enterprise and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.93         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.26       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,419  |
| CNEL: | 153    | 329    | 709    | 1,528  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Technology Dr. W    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,350 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.16       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.11       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.3        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.4        | 55.7      | 64.0 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.8        | 63.9      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 145    | 313    | 674    | 1,452  |
| CNEL: | 156    | 337    | 726    | 1,563  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: b/w Techonology Dr. W and Ada    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,980 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.80         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.44       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.40       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.2        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 257    | 553    | 1,192  |
| CNEL: | 128    | 277    | 596    | 1,284  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Ada    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 35,300 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,530 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.28         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.92       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.6        | 53.9      | 62.2 | 62.4 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 237    | 511    | 1,100  |
| CNEL: | 118    | 255    | 550    | 1,185  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: w/o Marine Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.45         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.79       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.75       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 243    | 524    | 1,129  |
| CNEL: | 122    | 262    | 564    | 1,216  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: e/o Technology    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.8        | 54.1      | 62.4 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 526    | 1,133  |
| CNEL: | 122    | 263    | 567    | 1,220  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy./Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 35,900 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,590 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.35         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.89       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.7    | 52.7        | 54.0      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 70.0    | 67.1        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 516    | 1,113  |
| CNEL: | 120    | 258    | 556    | 1,198  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o Barranca Pkwy./Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 42,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,270 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.09       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 269    | 580    | 1,249  |
| CNEL: | 135    | 290    | 624    | 1,345  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 42,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,270 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.09       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 269    | 580    | 1,249  |
| CNEL: | 135    | 290    | 624    | 1,345  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 39,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,900 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.71         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.53       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.48       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 67.0        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.1 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 253    | 546    | 1,176  |
| CNEL: | 127    | 273    | 588    | 1,266  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: s/o Toledo Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.78         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.46       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.41       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.0        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 62.9          | 61.4    | 55.0        | 53.5      | 62.0 | 62.2 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.1        | 53.4      | 61.7 | 61.9 |
| Vehicle Noise: | 71.2          | 69.4    | 66.5        | 61.6      | 70.1 | 70.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 102    | 220    | 473    | 1,020  |
| CNEL: | 110    | 237    | 510    | 1,098  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o Toledo Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,140 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.77         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.47       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.43       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.0        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 62.9          | 61.4    | 55.0        | 53.5      | 62.0 | 62.2 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.1        | 53.4      | 61.7 | 61.9 |
| Vehicle Noise: | 71.2          | 69.4    | 66.5        | 61.6      | 70.1 | 70.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 102    | 219    | 472    | 1,018  |
| CNEL: | 110    | 236    | 509    | 1,096  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: s/o Irvine Bl. / Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 33,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,310 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.20       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.2        | 60.2      | 68.8 | 69.4 |
| Medium Trucks: | 63.1          | 61.6    | 55.3        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 62.8          | 61.4    | 52.4        | 53.6      | 62.0 | 62.1 |
| Vehicle Noise: | 71.4          | 69.6    | 66.7        | 61.8      | 70.3 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 105    | 227    | 489    | 1,054  |
| CNEL: | 114    | 245    | 527    | 1,135  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.42       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.37       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.1        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 64.0          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.2        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.6        | 62.6      | 71.2 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 258    | 555    | 1,196  |
| CNEL: | 129    | 277    | 598    | 1,288  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o Commercentre    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 53,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,300 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.42         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.82       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.77       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.7 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.0        | 55.3      | 63.6 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 67.9        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 128    | 276    | 595    | 1,282  |
| CNEL: | 138    | 297    | 640    | 1,380  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: s/o SR-241 Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.51         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.73       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.69       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.0          | 67.3    | 64.2        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 158    | 340    | 733    |
| CNEL: | 79     | 170    | 365    | 787    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Job Number: 8141  
 Road Segment: n/o SR-241 Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.65         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.59       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.55       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 838    |
| CNEL: | 90     | 194    | 418    | 902    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota    Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.32        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.56       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.52       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.5          | 60.6    | 58.8        | 52.8      | 61.4 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.2        | 46.6      | 55.1 | 55.3 |
| Heavy Trucks:  | 56.5          | 55.0    | 46.0        | 47.3      | 55.6 | 55.7 |
| Vehicle Noise: | 64.2          | 62.4    | 59.4        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 162    | 349    |
| CNEL: | 38     | 81     | 174    | 375    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota    Job Number: 8141  
 Road Segment: w/o Paseo de Valencia    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.03        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.27       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.22       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.8          | 62.9    | 61.1        | 55.1      | 63.7 | 64.3 |
| Medium Trucks: | 58.3          | 56.8    | 50.5        | 48.9      | 57.4 | 57.6 |
| Heavy Trucks:  | 58.8          | 57.3    | 48.3        | 49.6      | 57.9 | 58.0 |
| Vehicle Noise: | 66.5          | 64.7    | 61.7        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 231    | 497    |
| CNEL: | 53     | 115    | 248    | 534    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota    Job Number: 8141  
 Road Segment: b/w Paseo de Valencia and El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.00       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 378    | 814    |
| CNEL: | 87     | 188    | 406    | 875    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 23,400 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,340 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 50 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 70 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 93.723 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 93.680 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 93.723 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.28         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.95       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.91       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.4        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 60.1          | 58.6    | 49.6        | 50.9      | 59.2 | 59.3 |
| Vehicle Noise: | 67.8          | 66.0    | 63.0        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 607    |
| CNEL: | 65     | 141    | 303    | 653    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: n/o Commercentre Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 33,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,300 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.78         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.46       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.42       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.1          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 61.6          | 60.1    | 51.1        | 52.4      | 60.7 | 60.8 |
| Vehicle Noise: | 69.3          | 67.5    | 64.5        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 165    | 355    | 764    |
| CNEL: | 82     | 177    | 381    | 821    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.39         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -13.85       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.80       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.8          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.5 |
| Vehicle Noise: | 69.9          | 68.1    | 65.1        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 839    |
| CNEL: | 90     | 194    | 418    | 902    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: s/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 48,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.67         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.56       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.52       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 64.8          | 63.3    | 56.9        | 55.4      | 63.9 | 64.1 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.0        | 55.3      | 63.6 | 63.8 |
| Vehicle Noise: | 73.1          | 71.3    | 68.4        | 63.5      | 72.0 | 72.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 136    | 294    | 633    | 1,363  |
| CNEL: | 147    | 316    | 682    | 1,468  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: b/w Toledo Wy. and Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 56,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.30         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.94       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.90       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.2          | 70.3    | 68.5        | 62.5      | 71.1 | 71.7 |
| Medium Trucks: | 65.4          | 63.9    | 57.6        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.1          | 63.7    | 54.7        | 55.9      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 71.9    | 69.0        | 64.1      | 72.6 | 73.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 150    | 323    | 696    | 1,500  |
| CNEL: | 162    | 348    | 750    | 1,616  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: n/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 62,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 6,240 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.49       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.7          | 70.8    | 69.0        | 62.9      | 71.6 | 72.2 |
| Medium Trucks: | 65.9          | 64.4    | 58.0        | 56.5      | 64.9 | 65.2 |
| Heavy Trucks:  | 65.6          | 64.1    | 55.1        | 56.4      | 64.7 | 64.8 |
| Vehicle Noise: | 74.1          | 72.4    | 69.5        | 64.5      | 73.1 | 73.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 161    | 347    | 747    | 1,608  |
| CNEL: | 173    | 373    | 804    | 1,732  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: s/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 62,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.86       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.82       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.2        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 350    | 755    | 1,626  | 3,503  |
| CNEL: | 378    | 814    | 1,753  | 3,777  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: s/o Rockfield Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 76,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 7,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.64         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.60       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.55       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.5          | 71.6    | 69.9        | 63.8      | 72.5 | 73.1 |
| Medium Trucks: | 66.8          | 65.3    | 58.9        | 57.4      | 65.8 | 66.1 |
| Heavy Trucks:  | 66.5          | 65.0    | 56.0        | 57.3      | 65.6 | 65.7 |
| Vehicle Noise: | 75.0          | 73.3    | 70.4        | 65.4      | 74.0 | 74.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 184    | 397    | 856    | 1,844  |
| CNEL: | 199    | 428    | 922    | 1,986  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: n/o I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 83,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 8,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 6.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.9          | 72.0    | 70.2        | 64.2      | 72.8 | 73.4 |
| Medium Trucks: | 67.1          | 65.6    | 59.3        | 57.7      | 66.2 | 66.4 |
| Heavy Trucks:  | 66.8          | 65.4    | 56.4        | 57.6      | 66.0 | 66.1 |
| Vehicle Noise: | 75.4          | 73.6    | 70.7        | 65.8      | 74.3 | 74.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 195    | 420    | 904    | 1,949  |
| CNEL: | 210    | 452    | 974    | 2,099  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Research Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 35,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.30         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.94       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.89       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.6        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 238    | 513    | 1,104  |
| CNEL: | 119    | 256    | 552    | 1,189  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: b/w Research Dr. and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.82        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -18.06       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -22.01       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.3          | 58.8    | 52.4        | 50.9      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.5        | 50.8      | 59.1 | 59.3 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 317    | 684    |
| CNEL: | 74     | 159    | 342    | 737    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: s/ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -1.08        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -18.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -22.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 68.3          | 66.5    | 63.7        | 58.7      | 67.3 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 305    | 657    |
| CNEL: | 71     | 153    | 329    | 708    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: b/w Lake Forest Dr. and Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 340 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 60 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 76 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -7.89        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -25.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -29.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.0          | 58.1    | 56.4        | 50.3      | 58.9 | 59.5 |
| Medium Trucks: | 53.2          | 51.7    | 45.4        | 43.8      | 52.3 | 52.5 |
| Heavy Trucks:  | 52.9          | 51.5    | 42.5        | 43.7      | 52.1 | 52.2 |
| Vehicle Noise: | 61.5          | 59.7    | 56.9        | 51.9      | 60.5 | 60.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 50     | 107    | 231    |
| CNEL: | 25     | 54     | 116    | 249    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Job Number: 8141  
 Road Segment: b/w Ridge Route Dr. and Laguna Canyon    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 10,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,070 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.91        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -20.14       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -24.10       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.3      | 63.9 | 64.5 |
| Medium Trucks: | 58.2          | 56.7    | 50.4        | 48.8      | 57.3 | 57.5 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.5          | 64.7    | 61.8        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 230    | 496    |
| CNEL: | 53     | 115    | 248    | 535    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.4        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.5 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 427    | 920    |
| CNEL: | 99     | 214    | 460    | 991    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.22         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.02       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.98       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.7        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.8          | 60.3    | 53.9        | 52.4      | 60.8 | 61.1 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.4        | 52.6      | 61.0 | 61.1 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 183    | 395    | 850    |
| CNEL: | 91     | 197    | 425    | 915    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o W. Yale Lp.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 29,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,900 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.80         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.44       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.39       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.8        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 370    | 798    |
| CNEL: | 86     | 185    | 398    | 858    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Lake Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,590 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.31         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 343    | 740    |
| CNEL: | 80     | 171    | 369    | 796    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: b/w Creek Rd. and Lyon    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 24,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,470 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.10         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.7 | 60.0 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.2        | 59.3      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 154    | 333    | 717    |
| CNEL: | 77     | 166    | 358    | 771    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: w/o E. Yale Lp.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 76     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.55         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.64       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.1        | 58.0      | 66.6 | 67.3 |
| Medium Trucks: | 61.1          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 61.2          | 59.7    | 50.7        | 52.0      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.6    | 64.6        | 59.7      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 166    | 357    | 768    |
| CNEL: | 83     | 178    | 384    | 826    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.34        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.58       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.54       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.8          | 63.9    | 62.2        | 56.1      | 64.7 | 65.4 |
| Medium Trucks: | 59.2          | 57.7    | 51.4        | 49.8      | 58.3 | 58.5 |
| Heavy Trucks:  | 59.3          | 57.8    | 48.8        | 50.1      | 58.4 | 58.5 |
| Vehicle Noise: | 67.4          | 65.7    | 62.7        | 57.8      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 57     | 124    | 266    | 574    |
| CNEL: | 62     | 133    | 287    | 618    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.27        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.51       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.46       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.4        | 49.9      | 58.4 | 58.6 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.7    | 62.8        | 57.9      | 66.5 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 125    | 269    | 581    |
| CNEL: | 62     | 135    | 290    | 625    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.89        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.6        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.7 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 245    | 528    |
| CNEL: | 57     | 122    | 264    | 568    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.12        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.36       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.31       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.3      | 64.0 | 64.6 |
| Medium Trucks: | 58.5          | 56.9    | 50.6        | 49.0      | 57.5 | 57.7 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.0        | 49.3      | 57.6 | 57.8 |
| Vehicle Noise: | 66.6          | 64.9    | 61.9        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 236    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: b/w Discovery and Banting    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 13,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.0          | 56.5    | 47.5        | 48.8      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.4    | 61.4        | 56.5      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 218    | 470    |
| CNEL: | 51     | 109    | 235    | 505    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: s/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,790 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.29        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.53       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.49       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.2        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.4        | 49.9      | 58.3 | 58.6 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.7    | 62.8        | 57.9      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 125    | 268    | 578    |
| CNEL: | 62     | 134    | 289    | 622    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: b/w I-5 HOV Ramp and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: s/o Technology    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: n/o Technology    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 23,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,300 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.79         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.44       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.40       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.4          | 59.0    | 49.9        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.8        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 317    | 684    |
| CNEL: | 74     | 158    | 341    | 735    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: e/o Ada    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.    Job Number: 8141  
 Road Segment: w/o Marine Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 76     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy./Muirlands Bl.    Job Number: 8141  
 Road Segment: w/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy    Job Number: 8141  
 Road Segment: e/o Sterling    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.95        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.2          | 63.3    | 61.6        | 55.5      | 64.1 | 64.7 |
| Medium Trucks: | 58.6          | 57.1    | 50.8        | 49.2      | 57.7 | 57.9 |
| Heavy Trucks:  | 58.7          | 57.2    | 48.2        | 49.5      | 57.8 | 57.9 |
| Vehicle Noise: | 66.8          | 65.1    | 62.1        | 57.2      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 113    | 243    | 523    |
| CNEL: | 56     | 121    | 261    | 563    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.    Job Number: 8141  
 Road Segment: w/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 25,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.62         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.1          | 66.4    | 63.3        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 640    |
| CNEL: | 69     | 148    | 319    | 687    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.    Job Number: 8141  
 Road Segment: e/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.12         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.12       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.07       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.2        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 286    | 617    |
| CNEL: | 66     | 143    | 308    | 663    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.39         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.80       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.4        | 59.6      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 348    | 749    |
| CNEL: | 81     | 174    | 374    | 806    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.    Job Number: 8141  
 Road Segment: e/o Eastwood    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.36        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.60       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.56       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.8          | 62.9    | 61.2        | 55.1      | 63.7 | 64.3 |
| Medium Trucks: | 58.2          | 56.7    | 50.3        | 48.8      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.2          | 56.8    | 47.8        | 49.0      | 57.4 | 57.5 |
| Vehicle Noise: | 66.4          | 64.6    | 61.7        | 56.8      | 65.4 | 65.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 49     | 106    | 228    | 491    |
| CNEL: | 53     | 114    | 245    | 528    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Canyon View Av.    Job Number: 8141  
 Road Segment: w/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 7,400 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 740 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 93.723 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.72        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.95       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.91       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.1          | 59.2    | 57.4        | 51.4      | 60.0 | 60.6 |
| Medium Trucks: | 54.7          | 53.1    | 46.8        | 45.2      | 53.7 | 53.9 |
| Heavy Trucks:  | 55.1          | 53.6    | 44.6        | 45.9      | 54.2 | 54.3 |
| Vehicle Noise: | 62.8          | 61.0    | 58.0        | 53.2      | 61.8 | 62.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 61     | 131    | 282    |
| CNEL: | 30     | 65     | 141    | 303    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.    Job Number: 8141  
 Road Segment: w/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.80       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.75       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.5 | 60.8 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.1        | 52.3      | 60.7 | 60.8 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 377    | 812    |
| CNEL: | 87     | 188    | 405    | 873    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.    Job Number: 8141  
 Road Segment: e/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.40         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.84       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.79       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.4        | 60.3      | 69.0 | 69.6 |
| Medium Trucks: | 63.4          | 61.9    | 55.6        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.0        | 54.3      | 62.6 | 62.8 |
| Vehicle Noise: | 71.6          | 69.9    | 66.9        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 236    | 509    | 1,096  |
| CNEL: | 118    | 254    | 547    | 1,179  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Creek Rd.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 440 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -4.43        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -21.66       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -25.62       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 54.1          | 52.2    | 50.4        | 44.4      | 53.0 | 53.6 |
| Medium Trucks: | 48.3          | 46.8    | 40.4        | 38.9      | 47.3 | 47.6 |
| Heavy Trucks:  | 50.2          | 48.7    | 39.7        | 41.0      | 49.3 | 49.4 |
| Vehicle Noise: | 56.3          | 54.6    | 51.2        | 46.8      | 55.3 | 55.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 10     | 23     | 49     | 105    |
| CNEL: | 11     | 24     | 52     | 112    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,300 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,530 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.83         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.0 | 61.2 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 70.2          | 68.4    | 65.6        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 409    | 881    |
| CNEL: | 95     | 204    | 440    | 949    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,300 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,830 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.32         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.92       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.88       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.5          | 60.9    | 54.6        | 53.0      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.7          | 68.9    | 66.1        | 61.1      | 69.7 | 70.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 95     | 205    | 441    | 949    |
| CNEL: | 102    | 220    | 475    | 1,023  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: s/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.40         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.0    | 67.1        | 62.2      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 241    | 520    | 1,121  |
| CNEL: | 121    | 260    | 560    | 1,207  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: n/o Bryan Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.37       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.5      | 62.0 | 62.2 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.4    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 221    | 476    | 1,026  |
| CNEL: | 111    | 238    | 513    | 1,105  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: s/o Bryan Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 50,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.85         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.39       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.34       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.1        | 62.0      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.2    | 54.2        | 55.5      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.5    | 68.6        | 63.6      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 140    | 302    | 650    | 1,401  |
| CNEL: | 151    | 325    | 700    | 1,508  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 51,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,160 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.93         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.31       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 305    | 658    | 1,417  |
| CNEL: | 153    | 329    | 708    | 1,526  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: s/o I-5 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 56,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.34         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.90       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.2          | 70.3    | 68.6        | 62.5      | 71.1 | 71.7 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.2          | 63.7    | 54.7        | 55.9      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 325    | 700    | 1,509  |
| CNEL: | 163    | 350    | 754    | 1,625  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: n/o Walnut Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 51,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 5,140 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.91         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.33       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.6        | 63.7      | 72.3 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 141    | 305    | 656    | 1,413  |
| CNEL: | 152    | 328    | 707    | 1,522  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w Walnut Av. and Deerfiled Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 47,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,760 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.58         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.66       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.62       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.8        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 53.9        | 55.2      | 63.5 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 134    | 289    | 623    | 1,343  |
| CNEL: | 145    | 312    | 671    | 1,446  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Culver Dr.    Job Number: 8141  
Road Segment: b/w Deerfield Dr. and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 42,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,250 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.15       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.11       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 268    | 578    | 1,245  |
| CNEL: | 134    | 289    | 622    | 1,341  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w ICD and Warner Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 45,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,590 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.42         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.82       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.78       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.7        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.6          | 63.0    | 56.7        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.8        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.2        | 63.2      | 71.8 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 131    | 282    | 608    | 1,311  |
| CNEL: | 141    | 304    | 655    | 1,412  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w Warner Av. and Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 46,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.46         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.73       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.6 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 284    | 613    | 1,320  |
| CNEL: | 142    | 306    | 660    | 1,422  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 50,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.87         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.37       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.33       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.1        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.2        | 55.5      | 63.8 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.6        | 63.7      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 140    | 303    | 652    | 1,404  |
| CNEL: | 151    | 326    | 702    | 1,512  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w Alton Pkwy. and Main St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 51,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,170 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.93         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.26       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,419  |
| CNEL: | 153    | 329    | 709    | 1,528  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w Main St. and San Leandro    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 52,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 5,240 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.99         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.25       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.20       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 308    | 665    | 1,432  |
| CNEL: | 154    | 332    | 716    | 1,542  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.    Job Number: 8141  
 Road Segment: b/w San Leandro and I-405 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 58,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,850 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.7        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.4 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 332    | 715    | 1,541  |
| CNEL: | 166    | 358    | 770    | 1,659  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 12,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,220 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.871                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.830                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.871                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.54        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.78       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.74       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.0          | 61.1    | 59.4        | 53.3      | 61.9 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.0          | 55.6    | 46.6        | 47.8      | 56.2 | 56.3 |
| Vehicle Noise: | 64.7          | 63.0    | 59.9        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 177    | 381    |
| CNEL: | 41     | 88     | 190    | 409    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,600 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,160 vehicles             | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.18        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.42       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.37       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 48.0      | 56.4 | 56.7 |
| Heavy Trucks:  | 57.4          | 56.0    | 47.0        | 48.2      | 56.6 | 56.7 |
| Vehicle Noise: | 65.6          | 63.8    | 60.9        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 201    | 433    |
| CNEL: | 47     | 100    | 216    | 466    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.    Job Number: 8141  
 Road Segment: s/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.22        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.45       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.41       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.4          | 56.0    | 46.9        | 48.2      | 56.5 | 56.7 |
| Vehicle Noise: | 65.5          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real    Job Number: 8141  
 Road Segment: e/o Tustin Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 16,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.23        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.47       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.43       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.1          | 56.6    | 50.3        | 48.7      | 57.2 | 57.4 |
| Heavy Trucks:  | 58.6          | 57.1    | 48.1        | 49.3      | 57.7 | 57.8 |
| Vehicle Noise: | 66.3          | 64.5    | 61.5        | 56.7      | 65.2 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 104    | 223    | 481    |
| CNEL: | 52     | 111    | 240    | 517    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real    Job Number: 8141  
 Road Segment: e/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,430 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.20       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.0    | 64.1        | 59.2      | 67.8 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 329    | 709    |
| CNEL: | 76     | 164    | 354    | 763    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real N.    Job Number: 8141  
 Road Segment: s/o Bryan Ave.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                     |     |                     |       |       |                       |  |
|--|----------------|--|-----|---------------------|-------|-------|-----------------------|--|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15) |     |                     |       |       |                       |  |
| Average Daily Traffic (Adt):             | 7,800 vehicles | Autos: 15                              |     |                     |       |       |                       |  |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15            |     |                     |       |       |                       |  |
| Peak Hour Volume:                        | 780 vehicles   | Heavy Trucks (3+ Axles): 15            |     |                     |       |       |                       |  |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                            |     |                     |       |       |                       |  |
| Near/Far Lane Distance:                  | 52 feet        |  |     |                     |       |       |                       |  |
| Site Data                                |                | VehicleType                            | Day | Evening             | Night | Daily |                       |  |
|  |                | Autos: 77.5% 12.9% 9.6% 97.42%         |     |                     |       |       |                       |  |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%  |     |                     |       |       |                       |  |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%   |     |                     |       |       |                       |  |
|  |                | Noise Source Elevations (in feet)      |     |                     |       |       |                       |  |
|  |                | Autos: 2.000                           |     |                     |       |       |                       |  |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 4.000                   |     | Heavy Trucks: 8.006 |       |       | Grade Adjustment: 0.0 |  |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Lane Equivalent Distance (in feet)     |     |                     |       |       |                       |  |
| Centerline Dist. to Barrier: 100.0 feet  |                |  |     |                     |       |       |                       |  |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 96.607                          |     |                     |       |       |                       |  |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 96.566                  |     |                     |       |       |                       |  |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 96.608                   |     |                     |       |       |                       |  |
| Pad Elevation: 0.0 feet                  |                |  |     |                     |       |       |                       |  |
| Road Elevation: 0.0 feet                 |                |  |     |                     |       |       |                       |  |
| Road Grade: 0.0%                         |                |  |     |                     |       |       |                       |  |
| Left View: -90.0 degrees                 |                |  |     |                     |       |       |                       |  |
| Right View: 90.0 degrees                 |                |  |     |                     |       |       |                       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.90        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.10       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.3          | 60.4    | 58.6        | 52.6      | 61.2 | 61.8 |
| Medium Trucks: | 55.7          | 54.2    | 47.8        | 46.3      | 54.7 | 55.0 |
| Heavy Trucks:  | 55.7          | 54.3    | 45.2        | 46.5      | 54.9 | 55.0 |
| Vehicle Noise: | 63.9          | 62.1    | 59.1        | 54.3      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 72     | 154    | 332    |
| CNEL: | 36     | 77     | 166    | 358    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Portola Pkwy./S. Margarita Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 20,000 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,000 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.4 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.1      | 59.4 | 59.5 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.8      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 311    | 670    |
| CNEL: | 72     | 155    | 334    | 720    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: s/o Portola Pkwy./S. Margarita Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 43,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,300 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.51         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.73       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.68       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.2      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 240    | 518    | 1,115  |
| CNEL: | 120    | 259    | 557    | 1,200  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 714    |
| CNEL: | 77     | 165    | 356    | 768    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Toledo Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 44,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,400 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 84.853 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 84.806 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 84.853 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.23         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.00       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.96       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 645    | 1,390  |
| CNEL: | 150    | 322    | 695    | 1,497  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.23         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.00       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.96       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 645    | 1,390  |
| CNEL: | 150    | 322    | 695    | 1,497  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 46,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.43         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.81       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.77       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 308    | 664    | 1,432  |
| CNEL: | 154    | 332    | 716    | 1,542  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Rockfield Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.79         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.45       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.40       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.5      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.7        | 56.0      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 326    | 702    | 1,513  |
| CNEL: | 163    | 351    | 757    | 1,630  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 65,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 6,500 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 84.853 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 84.806 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 84.853 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.93         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.31       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.27       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.4          | 71.5    | 69.7        | 63.7      | 72.3 | 72.9 |
| Medium Trucks: | 66.6          | 65.1    | 58.8        | 57.2      | 65.7 | 65.9 |
| Heavy Trucks:  | 66.3          | 64.9    | 55.9        | 57.1      | 65.5 | 65.6 |
| Vehicle Noise: | 74.9          | 73.1    | 70.2        | 65.3      | 73.8 | 74.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 180    | 388    | 837    | 1,803  |
| CNEL: | 194    | 418    | 901    | 1,942  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Avenida Carlota    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 44,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.69         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.55       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.50       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,146  |
| CNEL: | 123    | 266    | 572    | 1,233  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Paseo de Valencia    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.89         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.35       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.7    | 64.9        | 58.8      | 67.5 | 68.1 |
| Medium Trucks: | 61.9          | 60.4    | 54.1        | 52.5      | 61.0 | 61.2 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.1          | 68.4    | 65.4        | 60.5      | 69.1 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 87     | 187    | 404    | 870    |
| CNEL: | 94     | 202    | 434    | 936    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: s/o Paseo de Valencia    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 32,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,290 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.35         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.89       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.84       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.3        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.4          | 60.9    | 54.5        | 53.0      | 61.4 | 61.7 |
| Heavy Trucks:  | 62.4          | 61.0    | 52.0        | 53.2      | 61.6 | 61.7 |
| Vehicle Noise: | 70.6          | 68.8    | 65.9        | 61.0      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 93     | 201    | 433    | 933    |
| CNEL: | 100    | 216    | 466    | 1,004  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,240 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.28         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.96       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.91       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.3        | 59.2      | 67.8 | 68.5 |
| Medium Trucks: | 62.3          | 60.8    | 54.5        | 52.9      | 61.4 | 61.6 |
| Heavy Trucks:  | 62.4          | 60.9    | 51.9        | 53.2      | 61.5 | 61.6 |
| Vehicle Noise: | 70.5          | 68.8    | 65.8        | 60.9      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 199    | 429    | 924    |
| CNEL: | 99     | 214    | 461    | 994    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o Aliso Creek Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.39         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.84       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.80       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.3      | 67.0 | 67.6 |
| Medium Trucks: | 61.4          | 59.9    | 53.6        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.0        | 52.3      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.9    | 64.9        | 60.0      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 374    | 806    |
| CNEL: | 87     | 187    | 402    | 867    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: n/o SR-73    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.93         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.6          | 66.7    | 64.9        | 58.9      | 67.5 | 68.1 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.0 | 61.3 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.6        | 52.8      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.4    | 65.5        | 60.6      | 69.1 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 189    | 406    | 876    |
| CNEL: | 94     | 203    | 437    | 942    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Job Number: 8141  
 Road Segment: s/o SR-73    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.10         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.14       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.10       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.2        | 55.2      | 63.8 | 64.4 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.5 | 57.7 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.4        | 49.7      | 58.0 | 58.2 |
| Vehicle Noise: | 66.6          | 64.8    | 61.8        | 57.0      | 65.6 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 109    | 235    | 506    |
| CNEL: | 54     | 117    | 252    | 544    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.    Job Number: 8141  
 Road Segment: b/w Gateway Bl. and Spectrum    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 8,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 870 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.43        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.67       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.62       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.8          | 60.9    | 59.1        | 53.0      | 61.7 | 62.3 |
| Medium Trucks: | 56.1          | 54.6    | 48.3        | 46.7      | 55.2 | 55.4 |
| Heavy Trucks:  | 56.2          | 54.8    | 45.7        | 47.0      | 55.3 | 55.5 |
| Vehicle Noise: | 64.3          | 62.6    | 59.6        | 54.7      | 63.3 | 63.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 77     | 166    | 358    |
| CNEL: | 38     | 83     | 179    | 385    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.    Job Number: 8141  
 Road Segment: b/w Pacifica and Spectrum    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.2          | 54.7    | 48.4        | 46.8      | 55.3 | 55.5 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.8        | 47.1      | 55.4 | 55.6 |
| Vehicle Noise: | 64.4          | 62.7    | 59.7        | 54.8      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 78     | 168    | 363    |
| CNEL: | 39     | 84     | 181    | 391    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.    Job Number: 8141  
 Road Segment: w/o Fortune Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 710 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.31        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.55       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.50       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.2        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.3          | 53.8    | 47.4        | 45.9      | 54.3 | 54.5 |
| Heavy Trucks:  | 55.3          | 53.9    | 44.8        | 46.1      | 54.4 | 54.6 |
| Vehicle Noise: | 63.5          | 61.7    | 58.7        | 53.9      | 62.4 | 62.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 31     | 67     | 145    | 312    |
| CNEL: | 34     | 72     | 156    | 336    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.    Job Number: 8141  
 Road Segment: w/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 270 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -8.51        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -25.75       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -29.70       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.7          | 55.8    | 54.0        | 48.0      | 56.6 | 57.2 |
| Medium Trucks: | 51.1          | 49.6    | 43.2        | 41.7      | 50.1 | 50.3 |
| Heavy Trucks:  | 51.1          | 49.7    | 40.6        | 41.9      | 50.2 | 50.4 |
| Vehicle Noise: | 59.3          | 57.5    | 54.5        | 49.7      | 58.2 | 58.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 16     | 35     | 76     | 164    |
| CNEL: | 18     | 38     | 82     | 176    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenn Ranch Rd.    Job Number: 8141  
 Road Segment: n/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,900 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.22         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.02       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.98       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 68.7          | 67.0    | 63.9        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 701    |
| CNEL: | 75     | 162    | 349    | 753    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenwood Dr./Indian Creek    Job Number: 8141  
 Road Segment: w/o Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.73        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.97       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.92       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.1          | 61.2    | 59.4        | 53.4      | 62.0 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.8        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.1          | 55.6    | 46.6        | 47.9      | 56.2 | 56.3 |
| Vehicle Noise: | 64.8          | 63.0    | 60.0        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 178    | 383    |
| CNEL: | 41     | 89     | 191    | 411    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Handy Creek Rd.    Job Number: 8141  
 Road Segment: e/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 220 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -8.02        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -25.25       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -29.21       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.7          | 50.8    | 49.0        | 43.0      | 51.6 | 52.2 |
| Medium Trucks: | 46.7          | 45.1    | 38.8        | 37.2      | 45.7 | 45.9 |
| Heavy Trucks:  | 48.0          | 46.6    | 37.5        | 38.8      | 47.1 | 47.2 |
| Vehicle Noise: | 54.7          | 53.0    | 49.7        | 45.1      | 53.7 | 54.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 18     | 38     | 82     |
| CNEL: | 9      | 19     | 41     | 87     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.    Job Number: 8141  
 Road Segment: s/o Walnut Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 99.544 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 99.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 99.544 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -0.18        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -17.42       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -21.37       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.7        | 48.6      | 57.2 | 57.8 |
| Medium Trucks: | 52.5          | 51.0    | 44.7        | 43.1      | 51.6 | 51.8 |
| Heavy Trucks:  | 54.4          | 53.0    | 43.9        | 45.2      | 53.6 | 53.7 |
| Vehicle Noise: | 60.6          | 58.8    | 55.4        | 51.0      | 59.5 | 60.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 43     | 93     | 201    |
| CNEL: | 21     | 46     | 100    | 215    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.    Job Number: 8141  
 Road Segment: n/o Edinger Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 13,200 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.62        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.86       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.81       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.0          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.0          | 56.6    | 47.5        | 48.8      | 57.1 | 57.3 |
| Vehicle Noise: | 66.1          | 64.4    | 61.4        | 56.6      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 102    | 219    | 472    |
| CNEL: | 51     | 109    | 236    | 508    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.    Job Number: 8141  
 Road Segment: b/w Edinger Av. And Paseo Westpark    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 15,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,520 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.00        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.24       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.20       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.2          | 63.3    | 61.5        | 55.5      | 64.1 | 64.7 |
| Medium Trucks: | 58.6          | 57.1    | 50.7        | 49.2      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.1        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 66.8          | 65.0    | 62.0        | 57.2      | 65.7 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 241    | 519    |
| CNEL: | 56     | 120    | 259    | 558    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Hubble    Job Number: 8141  
 Road Segment: n/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 200 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -9.81        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.05       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.01       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.4          | 54.5    | 52.7        | 46.7      | 55.3 | 55.9 |
| Medium Trucks: | 49.8          | 48.3    | 41.9        | 40.3      | 48.8 | 49.0 |
| Heavy Trucks:  | 49.8          | 48.4    | 39.3        | 40.6      | 48.9 | 49.1 |
| Vehicle Noise: | 58.0          | 56.2    | 53.2        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: b/w Newport and Red Hill    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 54,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,470 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.56         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.68       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.64       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.6        | 61.5      | 70.1 | 70.7 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.8 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 131    | 282    | 608    | 1,310  |
| CNEL: | 141    | 304    | 654    | 1,409  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: b/w Red Hill and Browning    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,340 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 4.87         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -12.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -16.33       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.0        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 63.7          | 62.2    | 53.2        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 71.4          | 69.6    | 66.6        | 61.8      | 70.3 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 105    | 227    | 489    | 1,053  |
| CNEL: | 113    | 244    | 525    | 1,131  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Tustin Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.97         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.27       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.22       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 67.0        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 64.0          | 62.5    | 56.1        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 64.1          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.2 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 258    | 556    | 1,197  |
| CNEL: | 129    | 277    | 598    | 1,288  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.40         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.84       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.79       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.4        | 60.3      | 69.0 | 69.6 |
| Medium Trucks: | 63.4          | 61.9    | 55.6        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.0        | 54.3      | 62.6 | 62.8 |
| Vehicle Noise: | 71.6          | 69.9    | 66.9        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 236    | 509    | 1,096  |
| CNEL: | 118    | 254    | 547    | 1,179  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 45,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.33         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.6        | 61.5      | 70.1 | 70.7 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.7 |
| Heavy Trucks:  | 64.1          | 62.7    | 53.7        | 54.9      | 63.3 | 63.4 |
| Vehicle Noise: | 72.7          | 70.9    | 68.1        | 63.1      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 279    | 600    | 1,293  |
| CNEL: | 139    | 300    | 647    | 1,393  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: b/w SR-261 Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 43,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.21         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.02       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.98       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.5        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.5        | 54.9      | 63.4 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.8    | 68.0        | 63.0      | 71.6 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 127    | 274    | 590    | 1,270  |
| CNEL: | 137    | 295    | 635    | 1,368  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o SR-261 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 45,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,500 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.33         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.6        | 61.5      | 70.1 | 70.7 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.7 |
| Heavy Trucks:  | 64.1          | 62.7    | 53.7        | 54.9      | 63.3 | 63.4 |
| Vehicle Noise: | 72.7          | 70.9    | 68.1        | 63.1      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 279    | 600    | 1,293  |
| CNEL: | 139    | 300    | 647    | 1,393  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,840 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.64         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.60       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.55       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.7    | 66.9        | 60.8      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 55.9        | 54.4      | 62.8 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.0    | 53.0        | 54.3      | 62.6 | 62.7 |
| Vehicle Noise: | 72.0          | 70.3    | 67.4        | 62.4      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 116    | 251    | 540    | 1,164  |
| CNEL: | 125    | 270    | 582    | 1,253  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.69         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.55       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.51       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.0        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 252    | 544    | 1,172  |
| CNEL: | 126    | 272    | 586    | 1,262  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Yale Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,240 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.07         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.17       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.12       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 268    | 577    | 1,243  |
| CNEL: | 134    | 288    | 621    | 1,339  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,750 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.54         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.70       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.65       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 70.0 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.7 | 63.0 |
| Heavy Trucks:  | 63.4          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.2    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,145  |
| CNEL: | 123    | 266    | 573    | 1,234  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.40         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.0    | 67.1        | 62.2      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 241    | 520    | 1,121  |
| CNEL: | 121    | 260    | 560    | 1,207  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Groveland    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.42         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.82       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.77       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.0    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 242    | 522    | 1,125  |
| CNEL: | 121    | 261    | 562    | 1,212  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,890 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.70         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.50       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 253    | 545    | 1,174  |
| CNEL: | 126    | 272    | 587    | 1,264  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o SR-133 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 42,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,250 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.15       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.11       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 268    | 578    | 1,245  |
| CNEL: | 134    | 289    | 622    | 1,341  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o O St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.42         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.82       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.77       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.0    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 242    | 522    | 1,125  |
| CNEL: | 121    | 261    | 562    | 1,212  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o O St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,920 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.73         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.51       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.46       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 67.0        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.6          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.5        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 254    | 548    | 1,180  |
| CNEL: | 127    | 274    | 590    | 1,271  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o A St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.78         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.46       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.42       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 256    | 551    | 1,188  |
| CNEL: | 128    | 276    | 594    | 1,279  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Z St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 45,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,530 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.36         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.88       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.83       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.5      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.3 | 63.5 |
| Vehicle Noise: | 72.7          | 71.0    | 68.1        | 63.1      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 280    | 603    | 1,299  |
| CNEL: | 140    | 301    | 650    | 1,399  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Z St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.8        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.7          | 63.1    | 56.8        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.3        | 63.3      | 71.9 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 133    | 287    | 618    | 1,332  |
| CNEL: | 143    | 309    | 666    | 1,434  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o LQ St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 46,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.49         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.75       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.70       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.8        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 133    | 286    | 615    | 1,326  |
| CNEL: | 143    | 308    | 663    | 1,428  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o LQ St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 52,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,250 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 309    | 665    | 1,433  |
| CNEL: | 154    | 333    | 717    | 1,544  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 54,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.19         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.05       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.01       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.1          | 70.2    | 68.4        | 62.4      | 71.0 | 71.6 |
| Medium Trucks: | 65.3          | 63.8    | 57.5        | 55.9      | 64.4 | 64.6 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.5        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.6          | 71.8    | 68.9        | 64.0      | 72.5 | 73.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 148    | 318    | 685    | 1,475  |
| CNEL: | 159    | 342    | 737    | 1,589  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 43,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.22         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.01       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.97       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.5        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.4          | 62.9    | 56.5        | 54.9      | 63.4 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.8    | 68.0        | 63.0      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 127    | 274    | 591    | 1,272  |
| CNEL: | 137    | 295    | 636    | 1,370  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: ICD/Edinger Av.    Job Number: 8141  
Road Segment: w/o Jamboree    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.46         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.78       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.74       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.5        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.1        | 52.3      | 60.7 | 60.8 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 378    | 814    |
| CNEL: | 88     | 189    | 406    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD/Edinger Av.    Job Number: 8141  
 Road Segment: e/o Jamboree    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,020 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.98         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.26       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.22       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.6          | 66.7    | 65.0        | 58.9      | 67.5 | 68.1 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.6    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 409    | 881    |
| CNEL: | 95     | 204    | 440    | 948    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: e/o Hearthstone Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.30       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 413    | 890    |
| CNEL: | 96     | 207    | 445    | 959    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 26,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.14       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.10       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.3        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 426    | 918    |
| CNEL: | 99     | 213    | 459    | 989    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Yale Av. And Fontaine Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,880 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.6      | 68.2 | 68.8 |
| Medium Trucks: | 62.5          | 61.0    | 54.7        | 53.1      | 61.6 | 61.8 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 207    | 446    | 961    |
| CNEL: | 103    | 223    | 480    | 1,035  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 41,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,160 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.99         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.25       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.20       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.3        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.4        | 54.6      | 63.0 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 570    | 1,227  |
| CNEL: | 132    | 285    | 614    | 1,322  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.30       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 413    | 890    |
| CNEL: | 96     | 207    | 445    | 959    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: e/o Sand Canyon Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 19,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,940 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.32        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.56       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.52       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.0        | 51.3      | 59.6 | 59.8 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 343    | 738    |
| CNEL: | 80     | 171    | 369    | 795    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Laguna Canyon Rd. and Discovery    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.72        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.4 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 150    | 322    | 694    |
| CNEL: | 75     | 161    | 347    | 748    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: w/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,210 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.24         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.99       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.95       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.4      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.9      | 60.2 | 60.3 |
| Vehicle Noise: | 69.6          | 67.9    | 65.0        | 60.0      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 173    | 374    | 805    |
| CNEL: | 87     | 187    | 403    | 867    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Barranca Pkwy. and Gateway Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 839    |
| CNEL: | 90     | 195    | 419    | 903    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Gateway Bl.and Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,090 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 167    | 360    | 776    |
| CNEL: | 84     | 180    | 388    | 836    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Alton Pkwy.and Spectrum    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 34,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,470 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.04       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.4        | 60.4      | 69.0 | 69.6 |
| Medium Trucks: | 63.3          | 61.8    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.0          | 61.6    | 52.6        | 53.8      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.8    | 66.9        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 234    | 505    | 1,088  |
| CNEL: | 117    | 252    | 544    | 1,171  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Pacifica and Enterprise Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 35,100 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 3,510 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 60 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 76 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 92.547 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 92.504 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 92.547 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.25         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.99       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.94       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.4      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.6    | 52.6        | 53.9      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.9    | 67.0        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 236    | 509    | 1,096  |
| CNEL: | 118    | 254    | 548    | 1,180  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Enterprise and I-405 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.9          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.7    | 68.8        | 63.8      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 310    | 669    | 1,441  |
| CNEL: | 155    | 334    | 720    | 1,552  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Research Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 13,300 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,330 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | -2.31        | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -19.55       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -23.50       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.5        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 270    | 583    | 1,255  |
| CNEL: | 135    | 292    | 628    | 1,354  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Research Dr. and Hubble    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.57         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.67       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.6    | 64.8        | 58.8      | 67.4 | 68.0 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.4          | 60.0    | 50.9        | 52.2      | 60.5 | 60.7 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 182    | 393    | 846    |
| CNEL: | 91     | 196    | 423    | 911    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Hubble and Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.28         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 810    |
| CNEL: | 87     | 188    | 405    | 872    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Bake Pkwy. and Muller    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.15       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.11       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.5          | 67.7    | 64.8        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 79     | 169    | 365    | 786    |
| CNEL: | 85     | 182    | 393    | 846    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: b/w Muller and Tesla    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,060 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.06        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.26       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 69.3          | 67.6    | 64.7        | 59.7      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 166    | 357    | 768    |
| CNEL: | 83     | 178    | 384    | 827    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.17        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.1        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 69.2          | 67.4    | 64.6        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 756    |
| CNEL: | 81     | 175    | 378    | 814    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: n/o Chapman/Santiago Cyn.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.3        | 57.2      | 65.8 | 66.4 |
| Medium Trucks: | 60.3          | 58.8    | 52.5        | 50.9      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.4          | 58.9    | 49.9        | 51.1      | 59.5 | 59.6 |
| Vehicle Noise: | 68.5          | 66.7    | 63.8        | 58.9      | 67.5 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 146    | 315    | 679    |
| CNEL: | 73     | 157    | 339    | 730    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Chapman Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.33        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.52       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.7        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.8 | 58.0 |
| Heavy Trucks:  | 58.8          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.9 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 246    | 530    |
| CNEL: | 57     | 123    | 265    | 571    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Canyon View Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.02         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.22       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.18       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.5        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 164    | 353    | 760    |
| CNEL: | 82     | 176    | 380    | 818    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: n/o Tustin Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.39         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.84       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.80       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.3      | 67.0 | 67.6 |
| Medium Trucks: | 61.4          | 59.9    | 53.6        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.0        | 52.3      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.9    | 64.9        | 60.0      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 374    | 806    |
| CNEL: | 87     | 187    | 402    | 867    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Tustin Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.33         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.91       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.87       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.8        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 370    | 798    |
| CNEL: | 86     | 185    | 398    | 858    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.48         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.76       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.72       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.5        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.1    | 51.1        | 52.3      | 60.7 | 60.8 |
| Vehicle Noise: | 69.7          | 68.0    | 65.0        | 60.1      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 816    |
| CNEL: | 88     | 189    | 407    | 878    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,750 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.19         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -15.05       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -19.00       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.6          | 73.7    | 72.0        | 65.9      | 74.5 | 75.1 |
| Medium Trucks: | 68.7          | 67.2    | 60.9        | 59.3      | 67.8 | 68.0 |
| Heavy Trucks:  | 68.1          | 66.7    | 57.6        | 58.9      | 67.2 | 67.3 |
| Vehicle Noise: | 77.0          | 75.3    | 72.4        | 67.4      | 76.0 | 76.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 251    | 540    | 1,163  | 2,506  |
| CNEL: | 270    | 582    | 1,254  | 2,701  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Jamboree Rd.    Job Number: 8141  
Road Segment: s/o Bryan Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,920 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -14.85       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -18.81       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.8          | 73.9    | 72.2        | 66.1      | 74.7 | 75.3 |
| Medium Trucks: | 68.9          | 67.4    | 61.0        | 59.5      | 68.0 | 68.2 |
| Heavy Trucks:  | 68.3          | 66.8    | 57.8        | 59.1      | 67.4 | 67.5 |
| Vehicle Noise: | 77.2          | 75.4    | 72.6        | 67.6      | 76.2 | 76.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 258    | 556    | 1,198  | 2,581  |
| CNEL: | 278    | 599    | 1,291  | 2,782  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: b/w El Camino Real and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 61,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.34         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.90       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.85       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.1        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 69.9 | 70.2 |
| Heavy Trucks:  | 70.2          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.1 | 78.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 348    | 751    | 1,617  | 3,485  |
| CNEL: | 376    | 809    | 1,744  | 3,757  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: n/o Michelle Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 59,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,950 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.20         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.04       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.00       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.6          | 75.7    | 74.0        | 67.9      | 76.5 | 77.1 |
| Medium Trucks: | 70.7          | 69.2    | 62.9        | 61.3      | 69.8 | 70.0 |
| Heavy Trucks:  | 70.1          | 68.7    | 59.6        | 60.9      | 69.2 | 69.4 |
| Vehicle Noise: | 79.0          | 77.3    | 74.4        | 69.4      | 78.0 | 78.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 341    | 734    | 1,582  | 3,409  |
| CNEL: | 367    | 792    | 1,706  | 3,675  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Michelle Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 58,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.49         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.75       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.71       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.8        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.5 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 333    | 717    | 1,544  |
| CNEL: | 166    | 358    | 772    | 1,663  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: n/o Edinger Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 96,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 9,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 6.32         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -10.92       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -14.88       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.8          | 77.9    | 76.1        | 70.0      | 78.7 | 79.3 |
| Medium Trucks: | 72.8          | 71.3    | 65.0        | 63.4      | 71.9 | 72.1 |
| Heavy Trucks:  | 72.2          | 70.8    | 61.7        | 63.0      | 71.3 | 71.5 |
| Vehicle Noise: | 81.2          | 79.4    | 76.6        | 71.5      | 80.1 | 80.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 472    | 1,017  | 2,190  | 4,718  |
| CNEL: | 509    | 1,096  | 2,361  | 5,087  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.    Job Number: 8141  
 Road Segment: s/o Edinger Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 85,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 8,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 5.78         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -11.46       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -15.42       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.2          | 77.3    | 75.6        | 69.5      | 78.1 | 78.7 |
| Medium Trucks: | 72.3          | 70.8    | 64.4        | 62.9      | 71.4 | 71.6 |
| Heavy Trucks:  | 71.7          | 70.2    | 61.2        | 62.4      | 70.8 | 70.9 |
| Vehicle Noise: | 80.6          | 78.8    | 76.0        | 71.0      | 79.6 | 80.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 434    | 936    | 2,016  | 4,344  |
| CNEL: | 468    | 1,009  | 2,174  | 4,683  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: e/o SR-241 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 4,100 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 410 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -6.69        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -23.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -27.89       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.5          | 57.6    | 55.8        | 49.8      | 58.4 | 59.0 |
| Medium Trucks: | 52.9          | 51.4    | 45.0        | 43.5      | 51.9 | 52.2 |
| Heavy Trucks:  | 52.9          | 51.5    | 42.5        | 43.7      | 52.1 | 52.2 |
| Vehicle Noise: | 61.1          | 59.3    | 56.4        | 51.5      | 60.0 | 60.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 22     | 47     | 101    | 217    |
| CNEL: | 23     | 50     | 108    | 233    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: n/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.45        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.64       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.1        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.3        | 47.7      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.6    | 60.6        | 55.7      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 193    | 416    |
| CNEL: | 45     | 96     | 207    | 447    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 33,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.16       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.12       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.2          | 61.7    | 55.3        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 62.9          | 61.5    | 52.4        | 53.7      | 62.0 | 62.2 |
| Vehicle Noise: | 71.5          | 69.7    | 66.8        | 61.9      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 107    | 230    | 495    | 1,067  |
| CNEL: | 115    | 248    | 533    | 1,149  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: n/o Bryan Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 35,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,520 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.27         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.97       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.93       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.6        | 53.9      | 62.2 | 62.4 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 237    | 510    | 1,098  |
| CNEL: | 118    | 255    | 549    | 1,183  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 46,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.76       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 285    | 614    | 1,322  |
| CNEL: | 142    | 307    | 661    | 1,424  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 50,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.87         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.37       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.33       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.1        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.2        | 55.5      | 63.8 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.6        | 63.7      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 140    | 303    | 652    | 1,404  |
| CNEL: | 151    | 326    | 702    | 1,512  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: b/w Roosevelt and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 68,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 6,850 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.16         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.08       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.04       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.1          | 71.2    | 69.4        | 63.3      | 72.0 | 72.6 |
| Medium Trucks: | 66.3          | 64.8    | 58.4        | 56.9      | 65.3 | 65.6 |
| Heavy Trucks:  | 66.0          | 64.6    | 55.5        | 56.8      | 65.1 | 65.2 |
| Vehicle Noise: | 74.5          | 72.8    | 69.9        | 64.9      | 73.5 | 74.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 171    | 369    | 794    | 1,712  |
| CNEL: | 184    | 397    | 856    | 1,844  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: s/o Walnut Av./I-5 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 50,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,050 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.83         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.1        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.7          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.6        | 63.6      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 140    | 301    | 648    | 1,397  |
| CNEL: | 150    | 324    | 698    | 1,504  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: s/o Irvine Center Drive    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.49       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.45       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 61.9      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 63.9 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.1    | 54.1        | 55.4      | 63.7 | 63.8 |
| Vehicle Noise: | 73.1          | 71.4    | 68.5        | 63.5      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 297    | 640    | 1,378  |
| CNEL: | 148    | 320    | 689    | 1,485  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.58         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.65       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.61       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 53.9        | 55.2      | 63.5 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 134    | 290    | 624    | 1,345  |
| CNEL: | 145    | 312    | 672    | 1,448  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.    Job Number: 8141  
 Road Segment: b/w Quailcreek and I-405 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 57,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 5,750 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.40         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.6      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.7        | 56.1      | 64.6 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.8        | 56.0      | 64.4 | 64.5 |
| Vehicle Noise: | 73.8          | 72.0    | 69.1        | 64.2      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 152    | 328    | 707    | 1,523  |
| CNEL: | 164    | 353    | 761    | 1,640  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,300 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 730 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.19        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.43       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.38       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.0          | 60.1    | 58.3        | 52.3      | 60.9 | 61.5 |
| Medium Trucks: | 55.4          | 53.9    | 47.5        | 46.0      | 54.4 | 54.7 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.6          | 61.8    | 58.9        | 54.0      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 318    |
| CNEL: | 34     | 74     | 159    | 342    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,200 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.62        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.86       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.81       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.2          | 61.3    | 59.5        | 53.5      | 62.1 | 62.7 |
| Medium Trucks: | 56.8          | 55.2    | 48.9        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 64.9          | 63.1    | 60.1        | 55.3      | 63.9 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 84     | 181    | 389    |
| CNEL: | 42     | 90     | 194    | 418    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.    Job Number: 8141  
 Road Segment: e/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.10        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.34       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.30       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.7          | 62.8    | 61.0        | 55.0      | 63.6 | 64.2 |
| Medium Trucks: | 58.3          | 56.8    | 50.4        | 48.9      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.2        | 49.5      | 57.8 | 58.0 |
| Vehicle Noise: | 66.4          | 64.6    | 61.6        | 56.8      | 65.4 | 65.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 49     | 106    | 228    | 491    |
| CNEL: | 53     | 114    | 245    | 527    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.    Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 15,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.65        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.89       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.84       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.4      | 63.1 | 63.7 |
| Medium Trucks: | 57.7          | 56.2    | 49.9        | 48.3      | 56.8 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.9          | 64.1    | 61.1        | 56.3      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 210    | 452    |
| CNEL: | 49     | 105    | 225    | 485    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.    Job Number: 8141  
 Road Segment: w/o Los Alisos Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.06         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.18       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.13       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.2      | 65.8 | 66.4 |
| Medium Trucks: | 60.4          | 58.9    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.9          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 68.6          | 66.8    | 63.8        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 318    | 685    |
| CNEL: | 74     | 158    | 341    | 736    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.    Job Number: 8141  
 Road Segment: e/o Los Alisos Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.36         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.88       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.84       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.4      | 65.1 | 65.7 |
| Medium Trucks: | 59.7          | 58.2    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 285    | 614    |
| CNEL: | 66     | 142    | 306    | 660    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.    Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 25,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,560 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.67         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.56       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.52       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.8      | 65.4 | 66.0 |
| Medium Trucks: | 60.0          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.5          | 59.0    | 50.0        | 51.3      | 59.6 | 59.7 |
| Vehicle Noise: | 68.2          | 66.4    | 63.4        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 139    | 299    | 645    |
| CNEL: | 69     | 149    | 322    | 693    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Laguna Canyon Rd.    Job Number: 8141  
Road Segment: b/w ICD and Discovery    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 680 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.50        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.7          | 59.8    | 58.0        | 52.0      | 60.6 | 61.2 |
| Medium Trucks: | 55.1          | 53.6    | 47.2        | 45.7      | 54.1 | 54.4 |
| Heavy Trucks:  | 55.1          | 53.7    | 44.7        | 45.9      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.5    | 58.6        | 53.7      | 62.2 | 62.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 65     | 141    | 303    |
| CNEL: | 33     | 70     | 151    | 326    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: b/w Waterworks Wy. and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 680 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.50        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.7          | 59.8    | 58.0        | 52.0      | 60.6 | 61.2 |
| Medium Trucks: | 55.1          | 53.6    | 47.2        | 45.7      | 54.1 | 54.4 |
| Heavy Trucks:  | 55.1          | 53.7    | 44.7        | 45.9      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.5    | 58.6        | 53.7      | 62.2 | 62.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 65     | 141    | 303    |
| CNEL: | 33     | 70     | 151    | 326    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,100 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 610 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.97        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.2          | 59.3    | 57.6        | 51.5      | 60.1 | 60.7 |
| Medium Trucks: | 54.6          | 53.1    | 46.7        | 45.2      | 53.7 | 53.9 |
| Heavy Trucks:  | 54.6          | 53.2    | 44.2        | 45.4      | 53.8 | 53.9 |
| Vehicle Noise: | 62.8          | 61.0    | 58.1        | 53.2      | 61.8 | 62.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 61     | 131    | 282    |
| CNEL: | 30     | 65     | 141    | 304    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: s/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,500 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 950 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.05        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.24       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.1          | 61.2    | 59.5        | 53.4      | 62.0 | 62.6 |
| Medium Trucks: | 56.5          | 55.0    | 48.7        | 47.1      | 55.6 | 55.8 |
| Heavy Trucks:  | 56.6          | 55.1    | 46.1        | 47.4      | 55.7 | 55.8 |
| Vehicle Noise: | 64.7          | 63.0    | 60.0        | 55.1      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 176    | 379    |
| CNEL: | 41     | 88     | 189    | 408    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: n/o Quail Hill Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 760 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.01        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.21       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.6          | 54.1    | 47.7        | 46.1      | 54.6 | 54.8 |
| Heavy Trucks:  | 55.6          | 54.2    | 45.1        | 46.4      | 54.7 | 54.9 |
| Vehicle Noise: | 63.8          | 62.0    | 59.0        | 54.2      | 62.7 | 63.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 70     | 152    | 327    |
| CNEL: | 35     | 76     | 163    | 352    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: s/o Quail Hill Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 12,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.03        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.27       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.22       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.4      | 63.1 | 63.7 |
| Medium Trucks: | 57.5          | 56.0    | 49.7        | 48.1      | 56.6 | 56.8 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.1        | 48.4      | 56.7 | 56.9 |
| Vehicle Noise: | 65.7          | 64.0    | 61.0        | 56.1      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 95     | 206    | 443    |
| CNEL: | 48     | 103    | 221    | 477    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.    Job Number: 8141  
 Road Segment: n/o SR-73 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 34,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,430 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.53         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.71       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.66       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.3 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 414    | 892    |
| CNEL: | 96     | 207    | 446    | 960    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.    Job Number: 8141  
 Road Segment: s/o Paseo de Valencia    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.41         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.83       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.78       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 288    | 619    |
| CNEL: | 67     | 143    | 309    | 666    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.    Job Number: 8141  
 Road Segment: w/o Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,070 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.05         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.19       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.15       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 414    | 891    |
| CNEL: | 96     | 207    | 445    | 959    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Rd.    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 5,800 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 580 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.23        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.46       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.42       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.3          | 53.4    | 51.6        | 45.6      | 54.2 | 54.8 |
| Medium Trucks: | 49.5          | 48.0    | 41.6        | 40.1      | 48.5 | 48.8 |
| Heavy Trucks:  | 51.4          | 49.9    | 40.9        | 42.2      | 50.5 | 50.6 |
| Vehicle Noise: | 57.5          | 55.8    | 52.4        | 48.0      | 56.5 | 56.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 27     | 58     | 126    |
| CNEL: | 13     | 29     | 62     | 134    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.14         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.09       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.05       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.6          | 64.9    | 61.8        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 237    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o SR-241 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.06         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.18       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.13       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.2      | 65.8 | 66.4 |
| Medium Trucks: | 60.4          | 58.9    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.9          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 68.6          | 66.8    | 63.8        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 318    | 685    |
| CNEL: | 74     | 158    | 341    | 736    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o Rancho Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.15         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.08       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.04       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.2      | 66.9 | 67.5 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 376    | 809    |
| CNEL: | 87     | 187    | 404    | 870    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.13         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.11       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.3        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.5 | 60.8 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 69.6          | 67.9    | 64.8        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 374    | 806    |
| CNEL: | 87     | 187    | 402    | 866    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.31         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.93       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.89       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.2      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.8    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.5          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 233    | 502    | 1,081  |
| CNEL: | 116    | 250    | 540    | 1,163  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,900 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.11       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.3 |
| Medium Trucks: | 63.1          | 61.6    | 55.3        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.2          | 61.7    | 52.7        | 54.0      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.6    | 66.6        | 61.7      | 70.3 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 105    | 225    | 485    | 1,045  |
| CNEL: | 112    | 242    | 522    | 1,124  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 40,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.20         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.04       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.00       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.2        | 60.1      | 68.8 | 69.4 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.8        | 54.1      | 62.4 | 62.6 |
| Vehicle Noise: | 71.4          | 69.7    | 66.7        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,063  |
| CNEL: | 114    | 246    | 531    | 1,144  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: n/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.10       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.0      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 96     | 208    | 448    | 965    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: n/o Rockfield Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.90         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.34       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.8      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.5        | 54.8      | 63.1 | 63.3 |
| Vehicle Noise: | 72.1          | 70.4    | 67.4        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,184  |
| CNEL: | 127    | 274    | 591    | 1,273  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 76,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 7,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 5.99         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.25       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.21       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.6          | 70.7    | 69.0        | 62.9      | 71.5 | 72.2 |
| Medium Trucks: | 66.0          | 64.5    | 58.2        | 56.6      | 65.1 | 65.3 |
| Heavy Trucks:  | 66.1          | 64.6    | 55.6        | 56.9      | 65.2 | 65.3 |
| Vehicle Noise: | 74.2          | 72.5    | 69.5        | 64.6      | 73.2 | 73.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 163    | 351    | 757    | 1,631  |
| CNEL: | 175    | 378    | 814    | 1,754  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o Avenida Carlota/I-5 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,270 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.36         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.88       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.83       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.5      | 67.2 | 67.8 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.5 | 60.8 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.7        | 52.0      | 60.3 | 60.5 |
| Vehicle Noise: | 69.7          | 68.0    | 65.1        | 60.1      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 380    | 820    |
| CNEL: | 88     | 190    | 410    | 883    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: s/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 12,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,250 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.23        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -19.47       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -23.43       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.7          | 63.8    | 62.0        | 56.0      | 64.6 | 65.2 |
| Medium Trucks: | 58.9          | 57.4    | 51.0        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.1        | 49.4      | 57.7 | 57.9 |
| Vehicle Noise: | 67.2          | 65.4    | 62.5        | 57.6      | 66.1 | 66.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 119    | 256    | 551    |
| CNEL: | 59     | 128    | 275    | 593    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: b/w Scientific Way and Tesla    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,160 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.14         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.3      | 67.0 | 67.6 |
| Medium Trucks: | 61.3          | 59.8    | 53.4        | 51.9      | 60.3 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.5          | 67.8    | 64.9        | 59.9      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 79     | 171    | 368    | 793    |
| CNEL: | 85     | 184    | 396    | 854    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: e/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 839    |
| CNEL: | 90     | 195    | 419    | 903    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.    Job Number: 8141  
 Road Segment: w/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.66         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.58       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.53       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.8 | 66.4 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.1      | 59.4 | 59.5 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.8      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 311    | 670    |
| CNEL: | 72     | 155    | 334    | 720    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,260 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.13         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.11       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.5          | 58.0    | 51.6        | 50.1      | 58.5 | 58.8 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 67.6          | 65.9    | 62.8        | 58.1      | 66.6 | 67.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 59     | 128    | 275    | 593    |
| CNEL: | 64     | 137    | 296    | 638    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 28,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,810 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 840    |
| CNEL: | 90     | 195    | 419    | 904    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.    Job Number: 8141  
 Road Segment: e/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 41,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.31         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.93       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.89       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.2      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.8    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.5          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 233    | 502    | 1,081  |
| CNEL: | 116    | 250    | 540    | 1,163  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.    Job Number: 8141  
 Road Segment: w/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.15         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.08       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.04       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.2      | 66.9 | 67.5 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 376    | 809    |
| CNEL: | 87     | 187    | 404    | 870    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.    Job Number: 8141  
 Road Segment: s/o Rockfield Bl./Fordview St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.10       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.0      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 96     | 208    | 448    | 965    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: b/w Avenida Carlota and Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |         |                       |        |  |
|--|--|--|--------|---------|-----------------------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |         |                       |        |  |
| Average Daily Traffic (Adt): 25,100 vehicles |  | Autos: 15                              |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |         |                       |        |  |
| Peak Hour Volume: 2,510 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |         |                       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |         |                       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening | Night                 | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |  |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.06       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.02       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.3          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 362    | 779    |
| CNEL: | 84     | 181    | 389    | 838    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: w/o O St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 21,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.40         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.79       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.4        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 139    | 299    | 643    |
| CNEL: | 69     | 149    | 321    | 692    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: e/o O St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.94         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.30       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.25       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.6          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 699    |
| CNEL: | 75     | 162    | 349    | 752    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: w/o D St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,310 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.81         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.42       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.38       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.7 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 318    | 686    |
| CNEL: | 74     | 159    | 342    | 738    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: e/o D St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 20,200 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,020 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.96       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.8          | 58.4    | 49.4        | 50.6      | 59.0 | 59.1 |
| Vehicle Noise: | 68.0          | 66.2    | 63.3        | 58.4      | 67.0 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 135    | 291    | 627    |
| CNEL: | 67     | 145    | 313    | 674    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy    Job Number: 8141  
 Road Segment: w/o Great Park Blvd East    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,050 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.30         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.94       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.90       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.8      | 65.4 | 66.0 |
| Medium Trucks: | 59.9          | 58.4    | 52.0        | 50.5      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.3    | 63.3        | 58.5      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 294    | 633    |
| CNEL: | 68     | 147    | 316    | 681    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy    Job Number: 8141  
 Road Segment: w/o B St    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy    Job Number: 8141  
 Road Segment: e/o B St    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.08         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.5      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.2        | 50.5      | 58.8 | 59.0 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 612    |
| CNEL: | 66     | 142    | 306    | 659    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: n/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.66         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.58       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.53       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.8 | 66.4 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.1      | 59.4 | 59.5 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.8      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 311    | 670    |
| CNEL: | 72     | 155    | 334    | 720    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.24        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.48       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.43       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.3          | 56.8    | 50.5        | 48.9      | 57.4 | 57.6 |
| Heavy Trucks:  | 58.4          | 56.9    | 47.9        | 49.2      | 57.5 | 57.6 |
| Vehicle Noise: | 66.5          | 64.8    | 61.8        | 56.9      | 65.5 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 108    | 232    | 500    |
| CNEL: | 54     | 116    | 250    | 538    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: n/o Rockfield Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.41         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.83       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.78       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.3 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.5        | 59.6      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 162    | 349    | 751    |
| CNEL: | 81     | 174    | 375    | 808    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.    Job Number: 8141  
 Road Segment: s/o Rockfield Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.1 |
| Medium Trucks: | 59.9          | 58.4    | 52.1        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 60.0          | 58.5    | 49.5        | 50.8      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.4    | 63.4        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 639    |
| CNEL: | 69     | 148    | 319    | 688    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Meridian    Job Number: 8141  
 Road Segment: n/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 1,000 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 100 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -12.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -30.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -34.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 53.4          | 51.5    | 49.7        | 43.6      | 52.3 | 52.9 |
| Medium Trucks: | 46.8          | 45.2    | 38.9        | 37.3      | 45.8 | 46.0 |
| Heavy Trucks:  | 46.8          | 45.4    | 36.3        | 37.6      | 45.9 | 46.1 |
| Vehicle Noise: | 54.9          | 53.2    | 50.2        | 45.4      | 53.9 | 54.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 18     | 39     | 85     |
| CNEL: | 9      | 20     | 42     | 91     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Modjeska    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | 0.57         | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -16.67       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -20.62       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.1          | 57.2    | 55.4        | 49.4      | 58.0 | 58.6 |
| Medium Trucks: | 53.3          | 51.8    | 45.4        | 43.9      | 52.3 | 52.6 |
| Heavy Trucks:  | 55.2          | 53.7    | 44.7        | 45.9      | 54.3 | 54.4 |
| Vehicle Noise: | 61.3          | 59.6    | 56.2        | 51.8      | 60.3 | 60.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 49     | 105    | 225    |
| CNEL: | 24     | 52     | 112    | 241    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: e/o (s/o) Lake Forest    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 31,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.16         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.08       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.03       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.2        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.4 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 195    | 421    | 906    |
| CNEL: | 98     | 210    | 453    | 975    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: e/o (s/o) Ridge Route    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 38,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,890 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.08         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.16       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.12       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.3        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.2          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.6    | 66.6        | 61.7      | 70.3 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 225    | 484    | 1,043  |
| CNEL: | 112    | 242    | 521    | 1,123  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: w/o (n/o) El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.62         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.62       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.57       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.2        | 54.5      | 62.8 | 63.0 |
| Vehicle Noise: | 71.9          | 70.1    | 67.1        | 62.3      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 527    | 1,134  |
| CNEL: | 122    | 263    | 566    | 1,220  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: e/o (s/o) El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 44,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.69         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.55       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.50       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,146  |
| CNEL: | 123    | 266    | 572    | 1,233  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: b/w Glenwood/Indian Creek and Laguna Hills    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.34         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.90       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.86       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 53.0        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.9        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 234    | 504    | 1,086  |
| CNEL: | 117    | 252    | 542    | 1,168  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: s/o Laguna Hills Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 30,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.98         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.26       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.22       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.6          | 66.7    | 65.0        | 58.9      | 67.5 | 68.1 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.6    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 409    | 881    |
| CNEL: | 95     | 204    | 440    | 948    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.    Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.4        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.6 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 372    | 802    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: w/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.62        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.86       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.82       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.6          | 63.7    | 61.9        | 55.8      | 64.5 | 65.1 |
| Medium Trucks: | 59.0          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.0          | 57.6    | 48.5        | 49.8      | 58.1 | 58.3 |
| Vehicle Noise: | 67.1          | 65.4    | 62.4        | 57.6      | 66.1 | 66.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 119    | 255    | 550    |
| CNEL: | 59     | 127    | 275    | 592    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: e/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.91         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.33       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.29       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.3          | 58.8    | 52.4        | 50.9      | 59.3 | 59.6 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.4          | 66.7    | 63.6        | 58.8      | 67.4 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 310    | 668    |
| CNEL: | 72     | 155    | 333    | 718    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.91         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.33       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.29       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.3          | 58.8    | 52.4        | 50.9      | 59.3 | 59.6 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.4          | 66.7    | 63.6        | 58.8      | 67.4 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 310    | 668    |
| CNEL: | 72     | 155    | 333    | 718    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,900 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.22         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.02       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.98       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 68.7          | 67.0    | 63.9        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 701    |
| CNEL: | 75     | 162    | 349    | 753    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: s/o Los Alisos Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.47         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.77       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.73       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.0      | 59.4 | 59.5 |
| Vehicle Noise: | 68.0          | 66.2    | 63.2        | 58.4      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 135    | 290    | 625    |
| CNEL: | 67     | 145    | 311    | 671    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.    Job Number: 8141  
 Road Segment: e/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 19,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.58         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.61       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.9          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 57.9    | 48.9        | 50.2      | 58.5 | 58.6 |
| Vehicle Noise: | 67.1          | 65.3    | 62.3        | 57.5      | 66.0 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 117    | 253    | 545    |
| CNEL: | 59     | 126    | 272    | 586    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Oak Cyn./Laguna Cyn. Rd.    Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 6,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 99.544                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 99.504                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.80        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.04       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.99       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.1        | 46.0      | 54.6 | 55.2 |
| Medium Trucks: | 49.9          | 48.4    | 42.1        | 40.5      | 49.0 | 49.2 |
| Heavy Trucks:  | 51.8          | 50.4    | 41.3        | 42.6      | 50.9 | 51.1 |
| Vehicle Noise: | 57.9          | 56.2    | 52.8        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Orchard Hills/PA 1 Loop    Job Number: 8141  
 Road Segment: n/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 690 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.47        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -19.71       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.67       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.0          | 54.1    | 52.4        | 46.3      | 54.9 | 55.6 |
| Medium Trucks: | 50.3          | 48.7    | 42.4        | 40.8      | 49.3 | 49.5 |
| Heavy Trucks:  | 52.1          | 50.7    | 41.7        | 42.9      | 51.3 | 51.4 |
| Vehicle Noise: | 58.3          | 56.5    | 53.1        | 48.7      | 57.3 | 57.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 14     | 30     | 66     | 141    |
| CNEL: | 15     | 33     | 70     | 151    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica    Job Number: 8141  
 Road Segment: w/o Fortune Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.49        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.68       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.0        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.2        | 47.7      | 56.1 | 56.4 |
| Heavy Trucks:  | 57.1          | 55.7    | 46.7        | 47.9      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.5    | 60.6        | 55.7      | 64.2 | 64.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 89     | 192    | 413    |
| CNEL: | 44     | 96     | 206    | 444    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica    Job Number: 8141  
 Road Segment: w/o (n/o) Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                             |     |         |       |       |
|--|----------------|--|-----|---------|-------|-------|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b>  |     |         |       |       |
| Average Daily Traffic (Adt):   | 7,400 vehicles | Autos: 15                                      |     |         |       |       |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                    |     |         |       |       |
| Peak Hour Volume:  | 740 vehicles   | Heavy Trucks (3+ Axles): 15                    |     |         |       |       |
| Vehicle Speed:   | 55 mph         | <b>Vehicle Mix</b>                             |     |         |       |       |
| Near/Far Lane Distance:  | 52 feet        |  |     |         |       |       |
| <b>Site Data</b>   |                | VehicleType                                    | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet<br><i>Barrier Type (0-Wall, 1-Berm):</i> 0.0<br><i>Centerline Dist. to Barrier:</i> 100.0 feet<br><i>Centerline Dist. to Observer:</i> 100.0 feet<br><i>Barrier Distance to Observer:</i> 0.0 feet<br><i>Observer Height (Above Pad):</i> 5.0 feet<br><i>Pad Elevation:</i> 0.0 feet<br><i>Road Elevation:</i> 0.0 feet<br><i>Road Grade:</i> 0.0%<br><i>Left View:</i> -90.0 degrees<br><i>Right View:</i> 90.0 degrees |                | Autos: 77.5% 12.9% 9.6% 97.42%                 |     |         |       |       |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%          |     |         |       |       |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%           |     |         |       |       |
|  |                | <b>Noise Source Elevations (in feet)</b>       |     |         |       |       |
|  |                | Autos: 2.000                                   |     |         |       |       |
|  |                | Medium Trucks: 4.000                           |     |         |       |       |
|  |                | Heavy Trucks: 8.006      Grade Adjustment: 0.0 |     |         |       |       |
|  |                | <b>Lane Equivalent Distance (in feet)</b>      |     |         |       |       |
|  |                | Autos: 96.607                                  |     |         |       |       |
|  |                | Medium Trucks: 96.566                          |     |         |       |       |
| Heavy Trucks: 96.608   |                |  |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.13        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.37       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.32       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.1          | 60.2    | 58.4        | 52.3      | 61.0 | 61.6 |
| Medium Trucks: | 55.4          | 53.9    | 47.6        | 46.0      | 54.5 | 54.7 |
| Heavy Trucks:  | 55.5          | 54.1    | 45.0        | 46.3      | 54.6 | 54.8 |
| Vehicle Noise: | 63.6          | 61.9    | 58.9        | 54.0      | 62.6 | 63.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 149    | 321    |
| CNEL: | 35     | 74     | 160    | 345    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 68.0    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 815    |
| CNEL: | 88     | 189    | 407    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia    Job Number: 8141  
 Road Segment: w/o Los Alisos Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.10       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.0      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 96     | 208    | 448    | 965    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia    Job Number: 8141  
 Road Segment: e/o Los Alisos Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.90         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.34       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.8      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.5        | 54.8      | 63.1 | 63.3 |
| Vehicle Noise: | 72.1          | 70.4    | 67.4        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,184  |
| CNEL: | 127    | 274    | 591    | 1,273  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia    Job Number: 8141  
 Road Segment: w/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.75         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.49       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.44       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.7        | 59.7      | 68.3 | 68.9 |
| Medium Trucks: | 62.8          | 61.3    | 54.9        | 53.4      | 61.8 | 62.1 |
| Heavy Trucks:  | 62.8          | 61.4    | 52.4        | 53.6      | 62.0 | 62.1 |
| Vehicle Noise: | 71.0          | 69.2    | 66.3        | 61.4      | 70.0 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 214    | 461    | 993    |
| CNEL: | 107    | 230    | 496    | 1,068  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia    Job Number: 8141  
 Road Segment: e/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.95        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.19       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.14       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.4          | 55.9    | 49.6        | 48.0      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.8          | 56.4    | 47.4        | 48.6      | 57.0 | 57.1 |
| Vehicle Noise: | 65.6          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Jamboree Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.51        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.74       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.70       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.3          | 62.4    | 60.6        | 54.6      | 63.2 | 63.8 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.4      | 56.9 | 57.1 |
| Heavy Trucks:  | 58.3          | 56.9    | 47.8        | 49.1      | 57.4 | 57.6 |
| Vehicle Noise: | 66.0          | 64.2    | 61.2        | 56.4      | 65.0 | 65.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 46     | 99     | 214    | 462    |
| CNEL: | 50     | 107    | 230    | 496    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Portola Pkwy.    Job Number: 8141  
Road Segment: w/o SR-261 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 25,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.92         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.2        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.5    | 65.7        | 60.7      | 69.3 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 414    | 893    |
| CNEL: | 96     | 207    | 446    | 961    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o SR-261 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,140 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.09       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.2          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.5          | 67.7    | 64.8        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 79     | 170    | 366    | 788    |
| CNEL: | 85     | 183    | 394    | 849    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.38         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.86       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.82       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.7        | 52.0      | 60.3 | 60.5 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 382    | 822    |
| CNEL: | 89     | 191    | 411    | 885    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.1      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.6    | 65.7        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 97     | 208    | 449    | 966    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,760 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.59         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.65       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.61       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.1        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.7        | 52.0      | 60.3 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.6        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 166    | 358    | 772    |
| CNEL: | 83     | 179    | 385    | 830    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.81         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.42       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.38       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.7 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 318    | 686    |
| CNEL: | 74     | 159    | 342    | 738    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Ridge Valley    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 76     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Ridge Valley    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: b/w Silverado and Portola Springs    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.52         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.3 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 165    | 355    | 764    |
| CNEL: | 82     | 177    | 382    | 822    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Portola Springs    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.78         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.46       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.42       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.2      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.8    | 52.5        | 50.9      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.4          | 59.0    | 49.9        | 51.2      | 59.5 | 59.7 |
| Vehicle Noise: | 68.5          | 66.8    | 63.8        | 58.9      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 316    | 682    |
| CNEL: | 73     | 158    | 340    | 733    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 5,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 500 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -5.42        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -22.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -26.61       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.4          | 57.5    | 55.7        | 49.7      | 58.3 | 58.9 |
| Medium Trucks: | 52.9          | 51.4    | 45.1        | 43.5      | 52.0 | 52.2 |
| Heavy Trucks:  | 53.4          | 51.9    | 42.9        | 44.2      | 52.5 | 52.6 |
| Vehicle Noise: | 61.1          | 59.3    | 56.3        | 51.5      | 60.0 | 60.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 22     | 47     | 101    | 217    |
| CNEL: | 23     | 50     | 108    | 233    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 714    |
| CNEL: | 77     | 165    | 356    | 768    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.23         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.01       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.97       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.3          | 60.9    | 51.9        | 53.1      | 61.5 | 61.6 |
| Vehicle Noise: | 70.5          | 68.7    | 65.7        | 60.9      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 197    | 425    | 916    |
| CNEL: | 99     | 212    | 457    | 985    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: w/o Glenn Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.07       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.03       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.2        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.8        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.4 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 266    | 573    | 1,233  |
| CNEL: | 133    | 286    | 616    | 1,327  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: e/o Glenn Ranch Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.62         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.62       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.58       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.6      | 68.2 | 68.8 |
| Medium Trucks: | 62.7          | 61.2    | 54.8        | 53.3      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 62.0 |
| Vehicle Noise: | 70.9          | 69.1    | 66.1        | 61.3      | 69.8 | 70.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 210    | 451    | 972    |
| CNEL: | 105    | 225    | 486    | 1,046  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy. East    Job Number: 8141  
 Road Segment: s/o SR-241 SB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.62         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.62       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.58       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.6      | 68.2 | 68.8 |
| Medium Trucks: | 62.7          | 61.2    | 54.8        | 53.3      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 62.0 |
| Vehicle Noise: | 70.9          | 69.1    | 66.1        | 61.3      | 69.8 | 70.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 210    | 451    | 972    |
| CNEL: | 105    | 225    | 486    | 1,046  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.    Job Number: 8141  
 Road Segment: s/o Rancho Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 60,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.96         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.28       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.24       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 68.0        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 647    | 1,393  |
| CNEL: | 150    | 323    | 696    | 1,498  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy./S. Margarita Pkwy.    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 50,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.00       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.1      | 69.8 | 70.4 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.7    | 67.7        | 62.8      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 267    | 575    | 1,238  |
| CNEL: | 133    | 287    | 618    | 1,332  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Springs    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 660 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.63        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.87       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.82       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.6          | 59.7    | 57.9        | 51.8      | 60.5 | 61.1 |
| Medium Trucks: | 54.9          | 53.4    | 47.1        | 45.5      | 54.0 | 54.2 |
| Heavy Trucks:  | 55.0          | 53.6    | 44.5        | 45.8      | 54.1 | 54.3 |
| Vehicle Noise: | 63.1          | 61.4    | 58.4        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 149    | 320    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Quail Hill Pkwy.    Job Number: 8141  
 Road Segment: e/o Shady Canyon Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |  |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                                     |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |  |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |  |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.08         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.5      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.2        | 50.5      | 58.8 | 59.0 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 612    |
| CNEL: | 66     | 142    | 306    | 659    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy. S    Job Number: 8141  
 Road Segment: w/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 10,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.41        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.65       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.60       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.7        | 52.7      | 61.3 | 61.9 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.5      | 55.0 | 55.2 |
| Heavy Trucks:  | 56.4          | 55.0    | 45.9        | 47.2      | 55.5 | 55.7 |
| Vehicle Noise: | 64.1          | 62.3    | 59.3        | 54.5      | 63.1 | 63.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 34     | 74     | 160    | 345    |
| CNEL: | 37     | 80     | 172    | 370    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.36         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.88       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.83       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.7          | 59.2    | 52.9        | 51.3      | 59.8 | 60.0 |
| Heavy Trucks:  | 61.2          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 68.9          | 67.1    | 64.1        | 59.3      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 154    | 333    | 717    |
| CNEL: | 77     | 166    | 357    | 770    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.    Job Number: 8141  
 Road Segment: e/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.    Job Number: 8141  
 Road Segment: e/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 900 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.28        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.52       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.47       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.2      | 61.8 | 62.4 |
| Medium Trucks: | 56.3          | 54.8    | 48.4        | 46.9      | 55.3 | 55.6 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.9        | 47.1      | 55.5 | 55.6 |
| Vehicle Noise: | 64.5          | 62.7    | 59.8        | 54.9      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 37     | 79     | 170    | 366    |
| CNEL: | 39     | 85     | 183    | 393    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.    Job Number: 8141  
 Road Segment: w/o (n/o) Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 11,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,190 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.07        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.31       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.26       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.5          | 56.0    | 49.6        | 48.1      | 56.6 | 56.8 |
| Heavy Trucks:  | 57.5          | 56.1    | 47.1        | 48.3      | 56.7 | 56.8 |
| Vehicle Noise: | 65.7          | 63.9    | 61.0        | 56.1      | 64.7 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 95     | 204    | 441    |
| CNEL: | 47     | 102    | 220    | 474    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.    Job Number: 8141  
 Road Segment: n/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,220 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.96        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.20       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.15       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.6        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.7 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.8 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 208    | 448    |
| CNEL: | 48     | 104    | 224    | 482    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 9,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 900 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.87        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.10       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 54.0    | 47.6        | 46.1      | 54.5 | 54.8 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.5        | 46.7      | 55.1 | 55.2 |
| Vehicle Noise: | 63.6          | 61.9    | 58.8        | 54.1      | 62.6 | 63.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 149    | 321    |
| CNEL: | 35     | 74     | 160    | 345    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA        |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|---------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>             |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):    | 7,000 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:           | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:               | 700 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                  | 50 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:         | 70 feet        |   |        |                       |       |        |
| <b>Site Data</b>                |                | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Type (0-Wall, 1-Berm):  | 0.0            | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Centerline Dist. to Barrier:    | 100.0 feet     | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Observer:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Barrier Distance to Observer:   | 0.0 feet       | Autos:  | 2.000  | Grade Adjustment: 0.0 |       |        |
| Observer Height (Above Pad):    | 5.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Pad Elevation:                  | 0.0 feet       | Heavy Trucks:                                 | 8.006  |                       |       |        |
| Road Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Grade:                     | 0.0%           | Autos:  | 93.723 |                       |       |        |
| Left View:                      | -90.0 degrees  | Medium Trucks:                                | 93.680 |                       |       |        |
| Right View:                     | 90.0 degrees   | Heavy Trucks:                                 | 93.723 |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.96        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.20       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.15       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.8          | 59.0    | 57.2        | 51.1      | 59.8 | 60.4 |
| Medium Trucks: | 54.4          | 52.9    | 46.5        | 45.0      | 53.5 | 53.7 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.4        | 45.6      | 54.0 | 54.1 |
| Vehicle Noise: | 62.5          | 60.8    | 57.7        | 53.0      | 61.5 | 62.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 27     | 59     | 126    | 272    |
| CNEL: | 29     | 63     | 135    | 292    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 10,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.41        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.65       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.60       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.7        | 52.7      | 61.3 | 61.9 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.5      | 55.0 | 55.2 |
| Heavy Trucks:  | 56.4          | 55.0    | 45.9        | 47.2      | 55.5 | 55.7 |
| Vehicle Noise: | 64.1          | 62.3    | 59.3        | 54.5      | 63.1 | 63.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 34     | 74     | 160    | 345    |
| CNEL: | 37     | 80     | 172    | 370    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                 | NOISE MODEL INPUTS                            |  |  |  |  |
|--------------------------------|-----------------|---|--|--|--|--|
| <b>Highway Data</b>            |                 | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |  |  |  |
| Average Daily Traffic (Adt):   | 8,000 vehicles  | Autos: 15                                     |  |  |  |  |
| Peak Hour Percentage:          | 10%             | Medium Trucks (2 Axles): 15                   |  |  |  |  |
| Peak Hour Volume:              | 800 vehicles    | Heavy Trucks (3+ Axles): 15                   |  |  |  |  |
| Vehicle Speed:                 | 50 mph          |   |  |  |  |  |
| Near/Far Lane Distance:        | 70 feet         |   |  |  |  |  |
| <b>Site Data</b>               |                 |   |  |  |  |  |
| <b>Barrier Height:</b>         | <b>0.0 feet</b> |   |  |  |  |  |
| Barrier Type (0-Wall, 1-Berm): | 0.0             |   |  |  |  |  |
| Centerline Dist. to Barrier:   | 100.0 feet      |   |  |  |  |  |
| Centerline Dist. to Observer:  | 100.0 feet      |   |  |  |  |  |
| Barrier Distance to Observer:  | 0.0 feet        |   |  |  |  |  |
| Observer Height (Above Pad):   | 5.0 feet        |   |  |  |  |  |
| Pad Elevation:                 | 0.0 feet        |   |  |  |  |  |
| Road Elevation:                | 0.0 feet        |   |  |  |  |  |
| Road Grade:                    | 0.0%            |   |  |  |  |  |
| Left View:                     | -90.0 degrees   |   |  |  |  |  |
| Right View:                    | 90.0 degrees    |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |
|                                |                 |   |  |  |  |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.38        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 55.0          | 53.5    | 47.1        | 45.6      | 54.0 | 54.3 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.1          | 61.4    | 58.3        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 148    | 319    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o Rockfield B.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,810 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.17         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.07       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.03       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.3      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.7        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 59.0          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.7          | 64.9    | 61.9        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 238    | 512    |
| CNEL: | 55     | 118    | 255    | 550    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o (w/o) Avenida Carlota    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 14,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,490 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.68        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.7          | 56.2    | 49.8        | 48.3      | 56.7 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.8          | 64.1    | 61.0        | 56.2      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 224    | 483    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: s/o (w/o) Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.99        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.23       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.19       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.8          | 60.9    | 59.1        | 53.1      | 61.7 | 62.3 |
| Medium Trucks: | 56.4          | 54.9    | 48.5        | 47.0      | 55.4 | 55.7 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.3        | 47.6      | 55.9 | 56.1 |
| Vehicle Noise: | 64.5          | 62.8    | 59.7        | 54.9      | 63.5 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 37     | 79     | 170    | 367    |
| CNEL: | 39     | 85     | 183    | 395    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.    Job Number: 8141  
 Road Segment: e/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 9,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 940 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.68        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.1          | 60.2    | 58.5        | 52.4      | 61.0 | 61.6 |
| Medium Trucks: | 55.7          | 54.2    | 47.8        | 46.3      | 54.7 | 55.0 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 63.8          | 62.1    | 59.0        | 54.2      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 71     | 153    | 331    |
| CNEL: | 36     | 77     | 165    | 355    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Valley    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.82        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.4          | 61.5    | 59.7        | 53.6      | 62.3 | 62.9 |
| Medium Trucks: | 56.8          | 55.2    | 48.9        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.3        | 47.6      | 55.9 | 56.1 |
| Vehicle Noise: | 64.9          | 63.2    | 60.2        | 55.4      | 63.9 | 64.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 85     | 182    | 392    |
| CNEL: | 42     | 91     | 196    | 422    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: e/o Marine Wy    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 6,400 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.76        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.00       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 54.8          | 53.3    | 46.9        | 45.4      | 53.9 | 54.1 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.4        | 45.6      | 54.0 | 54.1 |
| Vehicle Noise: | 63.0          | 61.2    | 58.3        | 53.4      | 62.0 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 135    | 291    |
| CNEL: | 31     | 68     | 145    | 313    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: e/o Sterling    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 5,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 540 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -5.50        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.7          | 58.8    | 57.0        | 51.0      | 59.6 | 60.2 |
| Medium Trucks: | 54.1          | 52.6    | 46.2        | 44.7      | 53.1 | 53.4 |
| Heavy Trucks:  | 54.1          | 52.7    | 43.7        | 44.9      | 53.3 | 53.4 |
| Vehicle Noise: | 62.3          | 60.5    | 57.5        | 52.7      | 61.2 | 61.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 26     | 56     | 121    | 260    |
| CNEL: | 28     | 60     | 130    | 280    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: w/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,060 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.57        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.81       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.76       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.6          | 61.7    | 60.0        | 53.9      | 62.5 | 63.1 |
| Medium Trucks: | 57.0          | 55.5    | 49.1        | 47.6      | 56.1 | 56.3 |
| Heavy Trucks:  | 57.0          | 55.6    | 46.6        | 47.8      | 56.2 | 56.3 |
| Vehicle Noise: | 65.2          | 63.4    | 60.5        | 55.6      | 64.2 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 88     | 189    | 408    |
| CNEL: | 44     | 95     | 204    | 439    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.86        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.06       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.7        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.8 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.9 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 246    | 530    |
| CNEL: | 57     | 123    | 265    | 570    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.39         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.84       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.80       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 287    | 618    |
| CNEL: | 66     | 143    | 308    | 664    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,000 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,400 vehicles             | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.39         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.84       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.80       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 287    | 618    |
| CNEL: | 66     | 143    | 308    | 664    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.69        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.89       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.8        | 53.8      | 62.4 | 63.0 |
| Medium Trucks: | 56.9          | 55.4    | 49.0        | 47.5      | 55.9 | 56.2 |
| Heavy Trucks:  | 56.9          | 55.5    | 46.5        | 47.7      | 56.1 | 56.2 |
| Vehicle Noise: | 65.1          | 63.3    | 60.4        | 55.5      | 64.0 | 64.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 86     | 186    | 400    |
| CNEL: | 43     | 93     | 200    | 430    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt    Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt    Job Number: 8141  
 Road Segment: w/o Sand Canyon Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 860 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.48        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 53.0      | 61.6 | 62.2 |
| Medium Trucks: | 56.1          | 54.6    | 48.2        | 46.7      | 55.1 | 55.4 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 64.3          | 62.5    | 59.6        | 54.7      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 165    | 355    |
| CNEL: | 38     | 82     | 177    | 382    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,710 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.51         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 164    | 354    | 763    |
| CNEL: | 82     | 177    | 381    | 820    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: s/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 32,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.88         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.36       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.32       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.1      | 68.7 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.1 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 62.0 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 223    | 480    | 1,035  |
| CNEL: | 111    | 240    | 517    | 1,115  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 28,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,810 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.29         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.95       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.5        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.4          | 60.9    | 54.6        | 53.0      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.7          | 68.9    | 66.0        | 61.1      | 69.6 | 70.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 94     | 204    | 439    | 945    |
| CNEL: | 102    | 219    | 472    | 1,018  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: s/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 50,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 5,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.48         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.76       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.72       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 76.9          | 75.0    | 73.3        | 67.2      | 75.8 | 76.4 |
| Medium Trucks: | 70.0          | 68.5    | 62.1        | 60.6      | 69.1 | 69.3 |
| Heavy Trucks:  | 69.4          | 67.9    | 58.9        | 60.1      | 68.5 | 68.6 |
| Vehicle Noise: | 78.3          | 76.5    | 73.7        | 68.7      | 77.3 | 77.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 305    | 657    | 1,416  | 3,052  |
| CNEL: | 329    | 709    | 1,527  | 3,290  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: s/o Roosevelt    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,330 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.72         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.52       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.47       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.2          | 75.3    | 73.5        | 67.4      | 76.1 | 76.7 |
| Medium Trucks: | 70.2          | 68.7    | 62.4        | 60.8      | 69.3 | 69.5 |
| Heavy Trucks:  | 69.6          | 68.2    | 59.1        | 60.4      | 68.7 | 68.9 |
| Vehicle Noise: | 78.6          | 76.8    | 74.0        | 68.9      | 77.5 | 78.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 317    | 682    | 1,470  | 3,168  |
| CNEL: | 341    | 736    | 1,585  | 3,415  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: n/o I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 62,600 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 6,260 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.42         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.82       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.78       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.9          | 76.0    | 74.2        | 68.1      | 76.8 | 77.4 |
| Medium Trucks: | 70.9          | 69.4    | 63.1        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.9    | 59.8        | 61.1      | 69.4 | 69.6 |
| Vehicle Noise: | 79.3          | 77.5    | 74.7        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 353    | 760    | 1,637  | 3,526  |
| CNEL: | 380    | 819    | 1,764  | 3,801  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Burt Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 52,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,250 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 309    | 665    | 1,433  |
| CNEL: | 154    | 333    | 717    | 1,544  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: b/w Burt Rd. and Oak Cyn./Laguna Cyn. Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,350 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.08         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.16       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.11       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.3        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.4        | 55.7      | 64.0 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.8        | 63.9      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 145    | 313    | 674    | 1,452  |
| CNEL: | 156    | 337    | 726    | 1,563  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: n/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.4        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.9        | 62.9      | 71.5 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 270    | 581    | 1,251  |
| CNEL: | 135    | 290    | 625    | 1,347  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: s/o Waterworks Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.69         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.55       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.51       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.0        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 252    | 544    | 1,172  |
| CNEL: | 126    | 272    | 586    | 1,262  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,910 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.72         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.52       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.47       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 67.0        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.5        | 62.5      | 71.1 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 254    | 547    | 1,178  |
| CNEL: | 127    | 273    | 589    | 1,269  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.    Job Number: 8141  
 Road Segment: b/w Alton Pkwy.and I-405 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 41,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,130 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.96         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.28       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.1      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.7      | 63.1 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.3        | 54.6      | 62.9 | 63.1 |
| Vehicle Noise: | 72.3          | 70.6    | 67.7        | 62.7      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 122    | 263    | 567    | 1,222  |
| CNEL: | 132    | 283    | 611    | 1,316  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.    Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.91        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.15       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.11       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.2        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 53.9    | 47.6        | 46.0      | 54.5 | 54.7 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.4        | 46.7      | 55.0 | 55.1 |
| Vehicle Noise: | 63.6          | 61.8    | 58.8        | 54.0      | 62.6 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 319    |
| CNEL: | 34     | 74     | 159    | 343    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.    Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -4.17        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -21.41       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -25.36       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.6          | 56.7    | 54.9        | 48.9      | 57.5 | 58.1 |
| Medium Trucks: | 52.3          | 50.8    | 44.5        | 42.9      | 51.4 | 51.6 |
| Heavy Trucks:  | 53.2          | 51.8    | 42.7        | 44.0      | 52.3 | 52.4 |
| Vehicle Noise: | 60.4          | 58.7    | 55.5        | 50.8      | 59.4 | 59.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 42     | 91     | 196    |
| CNEL: | 21     | 45     | 98     | 210    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santiago Canyon Rd.    Job Number: 8141  
 Road Segment: e/o SR-241 NB Ramp    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.25         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.99       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.95       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.4        | 56.3      | 65.0 | 65.6 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 67.7          | 66.0    | 63.0        | 58.2      | 66.7 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 60     | 130    | 280    | 604    |
| CNEL: | 65     | 140    | 301    | 649    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Scientific Wy.    Job Number: 8141  
 Road Segment: s/o ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Spectrum    Job Number: 8141  
 Road Segment: w/o Fortune Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA        |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>             |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):    | 2,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:           | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:               | 290 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                  | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:         | 20 feet        |   |     |         |       |       |
| <b>Site Data</b>                |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm):  | 0.0            | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier:    | 100.0 feet     | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer:   | 0.0 feet       |   |     |         |       |       |
| Observer Height (Above Pad):    | 5.0 feet       | Autos: 2.000                                  |     |         |       |       |
| Pad Elevation:                  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Road Elevation:                 | 0.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Grade:                     | 0.0%           | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Left View:                      | -90.0 degrees  |   |     |         |       |       |
| Right View:                     | 90.0 degrees   |   |     |         |       |       |
|                                 |                | Autos: 99.544                                 |     |         |       |       |
|                                 |                | Medium Trucks: 99.504                         |     |         |       |       |
|                                 |                | Heavy Trucks: 99.544                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -6.24        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -23.47       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -27.43       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.3          | 50.4    | 48.6        | 42.6      | 51.2 | 51.8 |
| Medium Trucks: | 46.5          | 45.0    | 38.6        | 37.1      | 45.5 | 45.8 |
| Heavy Trucks:  | 48.3          | 46.9    | 37.9        | 39.1      | 47.5 | 47.6 |
| Vehicle Noise: | 54.5          | 52.8    | 49.3        | 45.0      | 53.5 | 53.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 17     | 37     | 79     |
| CNEL: | 8      | 18     | 39     | 85     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sterling    Job Number: 8141  
 Road Segment: b/w Rockfield Bl and Barrana Pkwy    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 380 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -5.06        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -22.30       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -26.26       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 53.5          | 51.6    | 49.8        | 43.7      | 52.4 | 53.0 |
| Medium Trucks: | 47.7          | 46.2    | 39.8        | 38.2      | 46.7 | 46.9 |
| Heavy Trucks:  | 49.5          | 48.1    | 39.1        | 40.3      | 48.7 | 48.8 |
| Vehicle Noise: | 55.7          | 54.0    | 50.5        | 46.1      | 54.7 | 55.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 9      | 20     | 44     | 95     |
| CNEL: | 10     | 22     | 47     | 101    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.    Job Number: 8141  
 Road Segment: e/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,070 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.34         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.90       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.86       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.0 |
| Medium Trucks: | 59.9          | 58.4    | 52.0        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.3    | 63.4        | 58.5      | 67.1 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 137    | 296    | 637    |
| CNEL: | 69     | 148    | 318    | 686    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.    Job Number: 8141  
 Road Segment: w/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 15,800 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.84        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.07       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.03       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.6      | 64.3 | 64.9 |
| Medium Trucks: | 58.7          | 57.2    | 50.9        | 49.3      | 57.8 | 58.0 |
| Heavy Trucks:  | 58.8          | 57.4    | 48.3        | 49.6      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.2    | 62.2        | 57.3      | 65.9 | 66.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 115    | 247    | 532    |
| CNEL: | 57     | 123    | 266    | 573    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.    Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,720 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.871 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.830 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.871 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.05        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.29       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.25       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 58.1          | 56.6    | 50.2        | 48.7      | 57.1 | 57.4 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.1        | 49.3      | 57.7 | 57.8 |
| Vehicle Noise: | 66.2          | 64.5    | 61.4        | 56.7      | 65.2 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 103    | 222    | 479    |
| CNEL: | 51     | 111    | 239    | 514    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 470 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -6.10        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -23.34       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -27.30       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.1          | 58.2    | 56.4        | 50.4      | 59.0 | 59.6 |
| Medium Trucks: | 53.5          | 52.0    | 45.6        | 44.1      | 52.5 | 52.8 |
| Heavy Trucks:  | 53.5          | 52.1    | 43.0        | 44.3      | 52.7 | 52.8 |
| Vehicle Noise: | 61.7          | 59.9    | 56.9        | 52.1      | 60.6 | 61.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 24     | 51     | 110    | 237    |
| CNEL: | 26     | 55     | 118    | 255    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.    Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -4.63        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.87       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.82       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.2          | 58.3    | 56.5        | 50.5      | 59.1 | 59.7 |
| Medium Trucks: | 53.7          | 52.2    | 45.9        | 44.3      | 52.8 | 53.0 |
| Heavy Trucks:  | 54.2          | 52.7    | 43.7        | 45.0      | 53.3 | 53.4 |
| Vehicle Noise: | 61.9          | 60.1    | 57.1        | 52.3      | 60.8 | 61.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 25     | 53     | 114    | 245    |
| CNEL: | 26     | 57     | 122    | 263    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Toledo Wy.    Job Number: 8141  
Road Segment: w/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                     |        |                       |       |        |  |
|---|----------------|--|--------|-----------------------|-------|--------|--|
| Highway Data  |                | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |  |
| Average Daily Traffic (Adt):  | 7,000 vehicles | Autos: 15                              |        |                       |       |        |  |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15            |        |                       |       |        |  |
| Peak Hour Volume:   | 700 vehicles   | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |  |
| Vehicle Speed:  | 45 mph         | Vehicle Mix                            |        |                       |       |        |  |
| Near/Far Lane Distance:   | 36 feet        |  |        |                       |       |        |  |
| Site Data   |                | VehicleType                            | Day    | Evening               | Night | Daily  |  |
|   |                | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |  |
|   |                | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |  |
|   |                | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |  |
|   |                | Noise Source Elevations (in feet)      |        |                       |       |        |  |
| Barrier Height: 0.0 feet<br>Barrier Type (0-Wall, 1-Berm): 0.0<br>Centerline Dist. to Barrier: 100.0 feet<br>Centerline Dist. to Observer: 100.0 feet<br>Barrier Distance to Observer: 0.0 feet<br>Observer Height (Above Pad): 5.0 feet<br>Pad Elevation: 0.0 feet<br>Road Elevation: 0.0 feet<br>Road Grade: 0.0%<br>Left View: -90.0 degrees<br>Right View: 90.0 degrees |                | Autos:                                 | 2.000  |                       |       |        |  |
|   |                | Medium Trucks:                         | 4.000  |                       |       |        |  |
|   |                | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |  |
|   |                | Lane Equivalent Distance (in feet)     |        |                       |       |        |  |
|   |                | Autos:                                 | 98.412 |                       |       |        |  |
|   |                | Medium Trucks:                         | 98.372 |                       |       |        |  |
|   |                | Heavy Trucks:                          | 98.413 |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -3.50        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -20.74       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -24.69       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.2          | 57.3    | 55.6        | 49.5      | 58.1 | 58.8 |
| Medium Trucks: | 53.0          | 51.5    | 45.1        | 43.6      | 52.0 | 52.3 |
| Heavy Trucks:  | 53.8          | 52.4    | 43.4        | 44.6      | 53.0 | 53.1 |
| Vehicle Noise: | 61.1          | 59.3    | 56.2        | 51.5      | 60.1 | 60.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 22     | 47     | 101    | 217    |
| CNEL: | 23     | 50     | 108    | 233    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.    Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 93.723                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 93.680                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.38        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 55.0          | 53.5    | 47.1        | 45.6      | 54.0 | 54.3 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.1          | 61.4    | 58.3        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 148    | 319    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: b/w Culver Dr. and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 38,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,840 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.02         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.22       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.17       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.5        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.7        | 53.2      | 61.6 | 61.9 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 207    | 447    | 962    |
| CNEL: | 104    | 223    | 480    | 1,035  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: e/o I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 21,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,140 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.48         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 56.9      | 65.6 | 66.2 |
| Medium Trucks: | 60.1          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.4 |
| Vehicle Noise: | 68.2          | 66.5    | 63.5        | 58.7      | 67.2 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 140    | 302    | 652    |
| CNEL: | 70     | 151    | 325    | 701    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,890 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  |   |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  |   |     |         |       |       |
| Left View: -90.0 degrees                     |  | Autos: 96.607                                 |     |         |       |       |
| Right View: 90.0 degrees                     |  | Medium Trucks: 96.566                         |     |         |       |       |
|  |  | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.06        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.30       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.25       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.5          | 58.0    | 51.6        | 50.1      | 58.6 | 58.8 |
| Heavy Trucks:  | 59.6          | 58.1    | 49.1        | 50.3      | 58.7 | 58.8 |
| Vehicle Noise: | 67.7          | 65.9    | 63.0        | 58.1      | 66.7 | 67.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 60     | 129    | 278    | 600    |
| CNEL: | 65     | 139    | 299    | 645    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,920 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.01         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.18       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.6 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.7 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 281    | 606    |
| CNEL: | 65     | 140    | 303    | 652    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: e/o Sand Canyon    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 25,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.28         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.7      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.0          | 67.3    | 64.3        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 342    | 736    |
| CNEL: | 79     | 171    | 368    | 792    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: e/o Bake Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.65         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.59       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.55       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 838    |
| CNEL: | 90     | 194    | 418    | 902    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: b/w Lake Forest Dr.and Ridge Route Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.74         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.50       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.45       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.7        | 59.7      | 68.3 | 68.9 |
| Medium Trucks: | 62.8          | 61.3    | 54.9        | 53.4      | 61.8 | 62.1 |
| Heavy Trucks:  | 62.8          | 61.4    | 52.4        | 53.6      | 62.0 | 62.1 |
| Vehicle Noise: | 71.0          | 69.2    | 66.3        | 61.4      | 69.9 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 213    | 460    | 991    |
| CNEL: | 107    | 230    | 495    | 1,066  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: w/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.20         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.04       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.00       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.2        | 60.1      | 68.8 | 69.4 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.8        | 54.1      | 62.4 | 62.6 |
| Vehicle Noise: | 71.4          | 69.7    | 66.7        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,063  |
| CNEL: | 114    | 246    | 531    | 1,144  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: e/o El Toro Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,370 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.34         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.90       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.86       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.7 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 613    |
| CNEL: | 66     | 142    | 305    | 658    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: n/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.82         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.41       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.37       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 63.0        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.2          | 58.7    | 52.3        | 50.8      | 59.2 | 59.5 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.3          | 66.6    | 63.5        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 709    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.    Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.01        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.25       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.20       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.1        | 54.1      | 62.7 | 63.3 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.8          | 56.4    | 47.3        | 48.6      | 56.9 | 57.1 |
| Vehicle Noise: | 65.5          | 63.7    | 60.7        | 55.9      | 64.5 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 92     | 198    | 427    |
| CNEL: | 46     | 99     | 213    | 459    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Tustin Ranch Rd.    Job Number: 8141  
Road Segment: w/o Jamboree    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.03        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.27       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.22       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 61.0        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.0          | 56.5    | 50.1        | 48.6      | 57.1 | 57.3 |
| Heavy Trucks:  | 58.0          | 56.6    | 47.6        | 48.8      | 57.2 | 57.3 |
| Vehicle Noise: | 66.2          | 64.4    | 61.5        | 56.6      | 65.2 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 103    | 221    | 476    |
| CNEL: | 51     | 110    | 238    | 512    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.    Job Number: 8141  
 Road Segment: s/o Portola Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 31,400 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 3,140 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 195    | 420    | 905    |
| CNEL: | 97     | 210    | 452    | 973    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.    Job Number: 8141  
 Road Segment: n/o La Colina Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,140 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 195    | 420    | 905    |
| CNEL: | 97     | 210    | 452    | 973    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.    Job Number: 8141  
 Road Segment: s/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,820 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.68         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.56       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.51       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.2    | 65.2        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 391    | 842    |
| CNEL: | 91     | 195    | 420    | 906    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: University Dr.    Job Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Michelson Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 59,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.56         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.68       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.5          | 70.6    | 68.8        | 62.7      | 71.4 | 72.0 |
| Medium Trucks: | 65.7          | 64.2    | 57.8        | 56.3      | 64.7 | 65.0 |
| Heavy Trucks:  | 65.4          | 64.0    | 54.9        | 56.2      | 64.5 | 64.7 |
| Vehicle Noise: | 73.9          | 72.2    | 69.3        | 64.3      | 72.9 | 73.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 156    | 336    | 725    | 1,562  |
| CNEL: | 168    | 362    | 781    | 1,682  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.    Job Number: 8141  
 Road Segment: w/o Jamboree    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.22         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.01       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.97       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.5        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.6          | 67.8    | 65.0        | 60.0      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 373    | 803    |
| CNEL: | 86     | 186    | 401    | 865    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.    Job Number: 8141  
 Road Segment: e/o Jamboree    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,340 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006    Grade Adjustment: 0.0  |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.49         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.75       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.70       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.7        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 388    | 836    |
| CNEL: | 90     | 194    | 418    | 901    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,590 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.31         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 343    | 740    |
| CNEL: | 80     | 171    | 369    | 796    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
Road Name: Walnut Av.    Job Number: 8141  
Road Segment: e/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 25,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,560 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.26         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.98       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.93       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.8        | 57.7      | 66.3 | 67.0 |
| Medium Trucks: | 60.8          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.9          | 59.4    | 50.4        | 51.7      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.3    | 64.3        | 59.4      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 158    | 341    | 734    |
| CNEL: | 79     | 170    | 367    | 790    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.    Job Number: 8141  
 Road Segment: e/o Yale Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,300 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.68        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.92       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.5      | 56.9 | 57.2 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.3    | 61.4        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 467    |
| CNEL: | 50     | 108    | 233    | 503    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av./I-5 SB Ramps    Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.10         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 285    | 614    |
| CNEL: | 66     | 142    | 307    | 661    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.    Job Number: 8141  
 Road Segment: w/o Paseo Westpark    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.49        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.68       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.0        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.2        | 47.7      | 56.1 | 56.4 |
| Heavy Trucks:  | 57.1          | 55.7    | 46.7        | 47.9      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.5    | 60.6        | 55.7      | 64.2 | 64.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 89     | 192    | 413    |
| CNEL: | 44     | 96     | 206    | 444    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.    Job Number: 8141  
 Road Segment: w/o Culver Dr.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.85       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.9        | 53.8      | 62.4 | 63.0 |
| Medium Trucks: | 56.9          | 55.4    | 49.1        | 47.5      | 56.0 | 56.2 |
| Heavy Trucks:  | 57.0          | 55.5    | 46.5        | 47.7      | 56.1 | 56.2 |
| Vehicle Noise: | 65.1          | 63.4    | 60.4        | 55.5      | 64.1 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 87     | 187    | 403    |
| CNEL: | 43     | 93     | 201    | 433    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.    Job Number: 8141  
 Road Segment: b/w Culver Dr. and W. Yale Loop    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.37        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.61       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.56       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.2        | 54.1      | 62.7 | 63.3 |
| Medium Trucks: | 57.2          | 55.7    | 49.3        | 47.8      | 56.3 | 56.5 |
| Heavy Trucks:  | 57.2          | 55.8    | 46.8        | 48.0      | 56.4 | 56.5 |
| Vehicle Noise: | 65.4          | 63.6    | 60.7        | 55.8      | 64.4 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 91     | 195    | 421    |
| CNEL: | 45     | 97     | 210    | 452    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop    Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 6,400 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.76        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.00       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 54.8          | 53.3    | 46.9        | 45.4      | 53.9 | 54.1 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.4        | 45.6      | 54.0 | 54.1 |
| Vehicle Noise: | 63.0          | 61.2    | 58.3        | 53.4      | 62.0 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 135    | 291    |
| CNEL: | 31     | 68     | 145    | 313    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop    Job Number: 8141  
 Road Segment: s/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 12,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,230 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.92        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.3          | 62.4    | 60.6        | 54.5      | 63.2 | 63.8 |
| Medium Trucks: | 57.7          | 56.1    | 49.8        | 48.2      | 56.7 | 56.9 |
| Heavy Trucks:  | 57.7          | 56.3    | 47.2        | 48.5      | 56.8 | 57.0 |
| Vehicle Noise: | 65.8          | 64.1    | 61.1        | 56.3      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 225    | 485    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: b/w Portola and Arborwood    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,100 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 610 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.01        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.24       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.20       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.5          | 53.6    | 51.8        | 45.8      | 54.4 | 55.0 |
| Medium Trucks: | 49.7          | 48.2    | 41.8        | 40.3      | 48.8 | 49.0 |
| Heavy Trucks:  | 51.6          | 50.2    | 41.1        | 42.4      | 50.7 | 50.9 |
| Vehicle Noise: | 57.7          | 56.0    | 52.6        | 48.2      | 56.7 | 57.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 28     | 60     | 130    |
| CNEL: | 14     | 30     | 65     | 139    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: b/w Park Pl. and Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  |   |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  |   |     |         |       |       |
| Left View: -90.0 degrees                     |  | Autos: 96.607                                 |     |         |       |       |
| Right View: 90.0 degrees                     |  | Medium Trucks: 96.566                         |     |         |       |       |
|  |  | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.10        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.34       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.30       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.4        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.5          | 56.0    | 49.6        | 48.1      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.5          | 56.1    | 47.0        | 48.3      | 56.7 | 56.8 |
| Vehicle Noise: | 65.7          | 63.9    | 60.9        | 56.1      | 64.6 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 94     | 203    | 438    |
| CNEL: | 47     | 102    | 219    | 471    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: n/o Bryan Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,500 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 850 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.53        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.77       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.72       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 52.9      | 61.6 | 62.2 |
| Medium Trucks: | 56.0          | 54.5    | 48.2        | 46.6      | 55.1 | 55.3 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.6        | 46.9      | 55.2 | 55.4 |
| Vehicle Noise: | 64.2          | 62.5    | 59.5        | 54.6      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 163    | 352    |
| CNEL: | 38     | 82     | 176    | 379    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: n/o Trabuco Rd.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 9,900 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 990 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.87        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.06       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.3          | 61.4    | 59.7        | 53.6      | 62.2 | 62.8 |
| Medium Trucks: | 56.7          | 55.2    | 48.8        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 56.7          | 55.3    | 46.3        | 47.5      | 55.9 | 56.0 |
| Vehicle Noise: | 64.9          | 63.1    | 60.2        | 55.3      | 63.9 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 84     | 181    | 390    |
| CNEL: | 42     | 90     | 195    | 419    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: n/o Walnut Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |       |                       | NOISE MODEL INPUTS                            |  |        |         |       |        |
|--|--|-------|-----------------------|---|--|--------|---------|-------|--------|
| <b>Highway Data</b>  |  |       |                       | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |       |        |
| Average Daily Traffic (Adt): 13,200 vehicles   |  |       |                       | Autos: 15                                     |  |        |         |       |        |
| Peak Hour Percentage: 10%  |  |       |                       | Medium Trucks (2 Axles): 15                   |  |        |         |       |        |
| Peak Hour Volume: 1,320 vehicles   |  |       |                       | Heavy Trucks (3+ Axles): 15                   |  |        |         |       |        |
| Vehicle Speed: 50 mph  |  |       |                       | <b>Vehicle Mix</b>                            |  |        |         |       |        |
| Near/Far Lane Distance: 50 feet  |  |       |                       |   |  |        |         |       |        |
| <b>Site Data</b>   |  |       |                       | VehicleType                                   |  | Day    | Evening | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |       |                       | Autos:  |  | 77.5%  | 12.9%   | 9.6%  | 97.42% |
|  |  |       |                       | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3% | 1.84%  |
|  |  |       |                       | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8% | 0.74%  |
|  |  |       |                       | <b>Noise Source Elevations (in feet)</b>      |  |        |         |       |        |
|  |  |       |                       | Autos:  |  | 2.000  |         |       |        |
| Medium Trucks:   |  | 4.000 |                       |   |  |        |         |       |        |
| Heavy Trucks:  |  | 8.006 | Grade Adjustment: 0.0 |   |  |        |         |       |        |
|  |  |       |                       | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |       |        |
|  |  |       |                       | Autos:  |  | 96.871 |         |       |        |
|  |  |       |                       | Medium Trucks:                                |  | 96.830 |         |       |        |
|  |  |       |                       | Heavy Trucks:                                 |  | 96.871 |         |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.20        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.44       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.40       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.4          | 61.5    | 59.7        | 53.7      | 62.3 | 62.9 |
| Medium Trucks: | 57.0          | 55.4    | 49.1        | 47.5      | 56.0 | 56.2 |
| Heavy Trucks:  | 57.4          | 55.9    | 46.9        | 48.2      | 56.5 | 56.6 |
| Vehicle Noise: | 65.1          | 63.3    | 60.3        | 55.5      | 64.1 | 64.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 86     | 186    | 401    |
| CNEL: | 43     | 93     | 200    | 431    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: s/o Walnut Av.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 11,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,190 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.07        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.31       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.26       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.5          | 56.0    | 49.6        | 48.1      | 56.6 | 56.8 |
| Heavy Trucks:  | 57.5          | 56.1    | 47.1        | 48.3      | 56.7 | 56.8 |
| Vehicle Noise: | 65.7          | 63.9    | 61.0        | 56.1      | 64.7 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 95     | 204    | 441    |
| CNEL: | 47     | 102    | 220    | 474    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: b/w Deerfield Dr. and ICD    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.75        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.99       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.94       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.4          | 62.5    | 60.8        | 54.7      | 63.3 | 63.9 |
| Medium Trucks: | 57.8          | 56.3    | 50.0        | 48.4      | 56.9 | 57.1 |
| Heavy Trucks:  | 57.9          | 56.4    | 47.4        | 48.6      | 57.0 | 57.1 |
| Vehicle Noise: | 66.0          | 64.3    | 61.3        | 56.4      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 46     | 100    | 215    | 463    |
| CNEL: | 50     | 107    | 231    | 498    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.    Job Number: 8141  
 Road Segment: b/w ICD and Yale Lp.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 11,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.41        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.65       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.60       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.1        | 54.1      | 62.7 | 63.3 |
| Medium Trucks: | 57.2          | 55.7    | 49.3        | 47.8      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.8    | 46.7        | 48.0      | 56.3 | 56.5 |
| Vehicle Noise: | 65.4          | 63.6    | 60.6        | 55.8      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 194    | 418    |
| CNEL: | 45     | 97     | 209    | 450    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas    Job Number: 8141  
 Road Segment: n/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 150 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -9.68        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -26.92       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -30.87       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 51.0          | 49.1    | 47.4        | 41.3      | 49.9 | 50.5 |
| Medium Trucks: | 45.0          | 43.5    | 37.1        | 35.6      | 44.0 | 44.3 |
| Heavy Trucks:  | 46.3          | 44.9    | 35.9        | 37.1      | 45.5 | 45.6 |
| Vehicle Noise: | 53.0          | 51.3    | 48.0        | 43.5      | 52.0 | 52.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 6      | 14     | 29     | 63     |
| CNEL: | 7      | 15     | 31     | 68     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas    Job Number: 8141  
 Road Segment: s/o Muirlands Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 700 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.99        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -20.23       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -24.18       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.7          | 55.8    | 54.0        | 48.0      | 56.6 | 57.2 |
| Medium Trucks: | 51.7          | 50.2    | 43.8        | 42.3      | 50.7 | 51.0 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.5        | 43.8      | 52.1 | 52.3 |
| Vehicle Noise: | 59.7          | 58.0    | 54.7        | 50.2      | 58.7 | 59.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 18     | 38     | 82     | 176    |
| CNEL: | 19     | 41     | 88     | 189    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: w/o "F" St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| Highway Data                             |              | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 60 mph       | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 76 feet      | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |              | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -23.20       | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -40.44       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -44.39       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 44.7          | 42.8    | 41.0        | 35.0      | 43.6 | 44.2 |
| Medium Trucks: | 37.9          | 36.4    | 30.1        | 28.5      | 37.0 | 37.2 |
| Heavy Trucks:  | 37.6          | 36.2    | 27.2        | 28.4      | 36.8 | 36.9 |
| Vehicle Noise: | 46.2          | 44.4    | 41.5        | 36.6      | 45.1 | 45.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 2      | 5      | 10     | 22     |
| CNEL: | 2      | 5      | 11     | 24     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o "F" St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.65        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.89       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 67.0    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 702    |
| CNEL: | 76     | 163    | 351    | 756    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.    Job Number: 8141  
 Road Segment: e/o Fairbanks    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.24         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.99       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.95       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.5        | 61.4      | 70.1 | 70.7 |
| Medium Trucks: | 64.4          | 62.9    | 56.5        | 55.0      | 63.4 | 63.7 |
| Heavy Trucks:  | 64.1          | 62.6    | 53.6        | 54.9      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.9    | 68.0        | 63.0      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 128    | 275    | 592    | 1,276  |
| CNEL: | 137    | 296    | 638    | 1,375  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks    Job Number: 8141  
 Road Segment: e/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 700 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 99.865                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 99.825                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.99        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -20.23       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -24.18       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.7          | 55.8    | 54.0        | 48.0      | 56.6 | 57.2 |
| Medium Trucks: | 51.7          | 50.2    | 43.8        | 42.3      | 50.7 | 51.0 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.5        | 43.8      | 52.1 | 52.3 |
| Vehicle Noise: | 59.7          | 58.0    | 54.7        | 50.2      | 58.7 | 59.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 18     | 38     | 82     | 176    |
| CNEL: | 19     | 41     | 88     | 189    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks    Job Number: 8141  
 Road Segment: w/o Alton Pkwy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 240 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -8.15        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -25.39       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -29.34       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 54.6          | 52.7    | 50.9        | 44.9      | 53.5 | 54.1 |
| Medium Trucks: | 48.4          | 46.8    | 40.5        | 38.9      | 47.4 | 47.6 |
| Heavy Trucks:  | 49.2          | 47.8    | 38.7        | 40.0      | 48.3 | 48.5 |
| Vehicle Noise: | 56.4          | 54.7    | 51.5        | 46.9      | 55.4 | 55.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 11     | 23     | 49     | 106    |
| CNEL: | 11     | 25     | 53     | 114    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks    Job Number: 8141  
 Road Segment: s/o Astor St.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |              | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 90 vehicles  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph       | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet      | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |              | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -11.90       | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -29.14       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -33.09       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 48.8          | 46.9    | 45.1        | 39.1      | 47.7 | 48.3 |
| Medium Trucks: | 42.8          | 41.3    | 34.9        | 33.4      | 41.8 | 42.1 |
| Heavy Trucks:  | 44.1          | 42.7    | 33.6        | 34.9      | 43.2 | 43.4 |
| Vehicle Noise: | 50.8          | 49.1    | 45.8        | 41.3      | 49.8 | 50.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 4      | 10     | 21     | 45     |
| CNEL: | 5      | 10     | 22     | 48     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks    Job Number: 8141  
 Road Segment: n/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |               | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|---------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |               | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 100 vehicles  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%           | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 10 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 45 mph        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 36 feet       | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |               | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet      | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet    | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet    | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet      | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet      | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet      | Autos: 98.412                                 |     |         |       |       |
| Road Grade:                    | 0.0%          | Medium Trucks: 98.372                         |     |         |       |       |
| Left View:                     | -90.0 degrees | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View:                    | 90.0 degrees  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -21.95       | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -39.19       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -43.15       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 40.8          | 38.9    | 37.1        | 31.1      | 39.7 | 40.3 |
| Medium Trucks: | 34.5          | 33.0    | 26.7        | 25.1      | 33.6 | 33.8 |
| Heavy Trucks:  | 35.4          | 34.0    | 24.9        | 26.2      | 34.5 | 34.7 |
| Vehicle Noise: | 42.6          | 40.9    | 37.7        | 33.1      | 41.6 | 42.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 1      | 3      | 6      | 13     |
| CNEL: | 1      | 3      | 6      | 14     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2011 Approved Project (Baseline)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks    Job Number: 8141  
 Road Segment: w/o Irvine Bl.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA        |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|---------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>             |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):    | 8,300 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:           | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:               | 830 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                  | 40 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:         | 12 feet        |   |        |                       |       |        |
| <b>Site Data</b>                |                | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Type (0-Wall, 1-Berm):  | 0.0            | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Centerline Dist. to Barrier:    | 100.0 feet     | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Observer:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Barrier Distance to Observer:   | 0.0 feet       | Autos:  | 2.000  | Grade Adjustment: 0.0 |       |        |
| Observer Height (Above Pad):    | 5.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Pad Elevation:                  | 0.0 feet       | Heavy Trucks:                                 | 8.006  |                       |       |        |
| Road Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Grade:                     | 0.0%           | Autos:  | 99.865 |                       |       |        |
| Left View:                      | -90.0 degrees  | Medium Trucks:                                | 99.825 |                       |       |        |
| Right View:                     | 90.0 degrees   | Heavy Trucks:                                 | 99.865 |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.25        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -19.49       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -23.44       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.5          | 56.6    | 54.8        | 48.7      | 57.4 | 58.0 |
| Medium Trucks: | 52.4          | 50.9    | 44.6        | 43.0      | 51.5 | 51.7 |
| Heavy Trucks:  | 53.7          | 52.3    | 43.3        | 44.5      | 52.9 | 53.0 |
| Vehicle Noise: | 60.5          | 58.7    | 55.5        | 50.9      | 59.4 | 59.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 43     | 92     | 198    |
| CNEL: | 21     | 46     | 98     | 212    |

## **APPENDIX 7.2**

2012 Modified Project

Off-Site Transportation Noise Model Printouts

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ada      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 2,800 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 280 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -8.35        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -25.59       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -29.55       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.8          | 55.9    | 54.2        | 48.1      | 56.7 | 57.3 |
| Medium Trucks: | 51.2          | 49.7    | 43.4        | 41.8      | 50.3 | 50.5 |
| Heavy Trucks:  | 51.3          | 49.8    | 40.8        | 42.0      | 50.4 | 50.5 |
| Vehicle Noise: | 59.4          | 57.7    | 54.7        | 49.8      | 58.4 | 58.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 17     | 36     | 78     | 168    |
| CNEL: | 18     | 39     | 84     | 181    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.07         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.17       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.13       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.2        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.3 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 224    | 483    | 1,042  |
| CNEL: | 112    | 241    | 520    | 1,121  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 43,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,300 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.51         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.73       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.68       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.2      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 240    | 518    | 1,115  |
| CNEL: | 120    | 259    | 557    | 1,200  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 59,700 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 5,970 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 644    | 1,388  |
| CNEL: | 149    | 322    | 693    | 1,493  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 60,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 6,010 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.97         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.27       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.23       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 68.0        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 647    | 1,394  |
| CNEL: | 150    | 323    | 696    | 1,500  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 66,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 6,600 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 5.37         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.87       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.82       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.4        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.4          | 63.9    | 57.6        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.5          | 64.0    | 55.0        | 56.2      | 64.6 | 64.7 |
| Vehicle Noise: | 73.6          | 71.8    | 68.9        | 64.0      | 72.6 | 73.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 148    | 320    | 689    | 1,484  |
| CNEL: | 160    | 344    | 741    | 1,597  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: s/o I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 53,300 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 5,330 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.79       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.75       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 277    | 597    | 1,287  |
| CNEL: | 138    | 298    | 643    | 1,385  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 45,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,590 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.80         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.44       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.40       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.8        | 60.7      | 69.4 | 70.0 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.1 |
| Vehicle Noise: | 72.0          | 70.3    | 67.3        | 62.4      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 251    | 541    | 1,165  |
| CNEL: | 125    | 270    | 582    | 1,253  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 44,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,450 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.58       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 570    | 1,228  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|   |  |
|---|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: Aliso Creek Rd.<br>Road Segment: e/o El Toro Rd. | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|---|--|

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,850 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet              |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.26         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.98       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.93       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.4      | 64.0 | 64.6 |
| Medium Trucks: | 58.6          | 57.1    | 50.8        | 49.2      | 57.7 | 57.9 |
| Heavy Trucks:  | 59.1          | 57.6    | 48.6        | 49.8      | 58.2 | 58.3 |
| Vehicle Noise: | 66.8          | 65.0    | 62.0        | 57.2      | 65.7 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 241    | 519    |
| CNEL: | 56     | 120    | 259    | 558    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.1          | 67.2    | 65.4        | 59.3      | 68.0 | 68.6 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.8    | 65.9        | 60.9      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 199    | 429    | 925    |
| CNEL: | 100    | 215    | 462    | 996    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.85         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.39       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.35       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.4        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.6        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.5          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.6 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 373    | 803    |
| CNEL: | 86     | 186    | 401    | 864    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o W. Yale Loop      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,820 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.68         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.1      | 66.8 | 67.4 |
| Medium Trucks: | 61.3          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.4          | 67.7    | 64.7        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 169    | 363    | 783    |
| CNEL: | 84     | 182    | 391    | 842    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Lake Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.39         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.80       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.4        | 59.6      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 348    | 749    |
| CNEL: | 81     | 174    | 374    | 806    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Creek Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.7 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.0        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 381    | 822    |
| CNEL: | 88     | 190    | 410    | 884    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Jeffrey Rd. and Royal Oak      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 23,700 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,370 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 96.607 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 96.566 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 96.608 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.92         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.31       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.27       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 324    | 697    |
| CNEL: | 75     | 162    | 348    | 750    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Royal Oak and Valley Oak      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 21,200 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,120 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 96.607 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 96.566 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 96.608 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.44         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.80       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.75       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 63.0        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.5        | 58.6      | 67.2 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 139    | 301    | 647    |
| CNEL: | 70     | 150    | 323    | 697    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: w/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.04         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.15       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.1    | 64.3        | 58.2      | 66.9 | 67.5 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 60.9          | 59.4    | 50.4        | 51.7      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.7    | 64.8        | 59.8      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 362    | 781    |
| CNEL: | 84     | 181    | 390    | 841    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.85         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.39       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.34       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.0      | 68.7 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.0 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.5      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.5    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 222    | 478    | 1,031  |
| CNEL: | 111    | 239    | 515    | 1,110  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Pacifica and Banting      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: w/o Meridian      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.32        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.2        | 56.1      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.7    | 51.4        | 49.8      | 58.3 | 58.5 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.8        | 50.1      | 58.4 | 58.6 |
| Vehicle Noise: | 67.4          | 65.7    | 62.7        | 57.9      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 124    | 267    | 576    |
| CNEL: | 62     | 134    | 288    | 620    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Meridian and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 17,900 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,790 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.67        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.87       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 66.9    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 700    |
| CNEL: | 75     | 162    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Enterprise and Gateway Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 37,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,750 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.54         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.70       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.65       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 70.0 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.7 | 63.0 |
| Heavy Trucks:  | 63.4          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.2    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,145  |
| CNEL: | 123    | 266    | 573    | 1,234  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Enterprise and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 52,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,200 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.96         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.28       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.3        | 55.6      | 63.9 | 64.1 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 307    | 661    | 1,424  |
| CNEL: | 153    | 331    | 712    | 1,534  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Technology Dr. W      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.12         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.4        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.3          | 63.7    | 57.4        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.5        | 55.7      | 64.1 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.9        | 63.9      | 72.5 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 146    | 314    | 677    | 1,459  |
| CNEL: | 157    | 339    | 729    | 1,571  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: b/w Techonology Dr. W and Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 40,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.30       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.0          | 62.5    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 72.3          | 70.5    | 67.6        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 261    | 561    | 1,210  |
| CNEL: | 130    | 281    | 605    | 1,303  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 35,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.30         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.94       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.89       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.6        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 238    | 513    | 1,104  |
| CNEL: | 119    | 256    | 552    | 1,189  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: w/o Marine Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 37,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 571    | 1,229  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: e/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 571    | 1,229  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy./Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 37,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 571    | 1,229  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o Barranca Pkwy./Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.02         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.22       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.17       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.3        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.2          | 62.6    | 56.3        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.4        | 54.6      | 63.0 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.8        | 62.8      | 71.4 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 266    | 572    | 1,233  |
| CNEL: | 133    | 286    | 617    | 1,328  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.02         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.22       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.17       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.3        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.2          | 62.6    | 56.3        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.4        | 54.6      | 63.0 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.8        | 62.8      | 71.4 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 266    | 572    | 1,233  |
| CNEL: | 133    | 286    | 617    | 1,328  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 38,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,820 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.62         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.62       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.57       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.9        | 60.8      | 69.4 | 70.0 |
| Medium Trucks: | 63.8          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.4          | 62.0    | 53.0        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 72.0          | 70.2    | 67.4        | 62.4      | 71.0 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 116    | 250    | 538    | 1,160  |
| CNEL: | 125    | 269    | 580    | 1,249  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: s/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 30,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.67         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.57       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.52       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.6          | 67.7    | 65.9        | 59.9      | 68.5 | 69.1 |
| Medium Trucks: | 62.8          | 61.3    | 54.9        | 53.4      | 61.9 | 62.1 |
| Heavy Trucks:  | 62.5          | 61.1    | 52.0        | 53.3      | 61.6 | 61.8 |
| Vehicle Noise: | 71.1          | 69.3    | 66.4        | 61.5      | 70.0 | 70.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 100    | 216    | 465    | 1,002  |
| CNEL: | 108    | 233    | 501    | 1,080  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,010 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.65       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.61       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.5          | 67.6    | 65.8        | 59.8      | 68.4 | 69.0 |
| Medium Trucks: | 62.7          | 61.2    | 54.9        | 53.3      | 61.8 | 62.0 |
| Heavy Trucks:  | 62.4          | 61.0    | 51.9        | 53.2      | 61.5 | 61.7 |
| Vehicle Noise: | 71.0          | 69.2    | 66.3        | 61.4      | 69.9 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 213    | 459    | 989    |
| CNEL: | 107    | 230    | 495    | 1,066  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: s/o Irvine Bl. / Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 33,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,340 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.04         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.3        | 60.2      | 68.8 | 69.5 |
| Medium Trucks: | 63.2          | 61.7    | 55.3        | 53.8      | 62.2 | 62.5 |
| Heavy Trucks:  | 62.9          | 61.4    | 52.4        | 53.6      | 62.0 | 62.1 |
| Vehicle Noise: | 71.4          | 69.7    | 66.8        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 228    | 492    | 1,060  |
| CNEL: | 114    | 246    | 530    | 1,142  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 40,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,090 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.92         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.2        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.1          | 62.5    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 72.3          | 70.5    | 67.7        | 62.7      | 71.3 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 261    | 563    | 1,214  |
| CNEL: | 131    | 282    | 607    | 1,307  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o Commercentre      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.80       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.76       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 277    | 597    | 1,286  |
| CNEL: | 138    | 298    | 642    | 1,383  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: s/o SR-241 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,090 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.49         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.75       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.70       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.0          | 67.2    | 64.2        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 158    | 339    | 731    |
| CNEL: | 79     | 169    | 365    | 785    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Job Number: 8141  
 Road Segment: n/o SR-241 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,810 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 840    |
| CNEL: | 90     | 195    | 419    | 904    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.37        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.56       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.8        | 52.7      | 61.3 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.6      | 55.0 | 55.3 |
| Heavy Trucks:  | 56.4          | 55.0    | 46.0        | 47.2      | 55.6 | 55.7 |
| Vehicle Noise: | 64.1          | 62.4    | 59.3        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 161    | 347    |
| CNEL: | 37     | 80     | 173    | 373    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |                                      |
|--|--------------------------------------|
| Scenario: Post 2030 - 2012 Modified Project (Option 1) | Project Name: 2012 Great Park GPA/ZC |
| Road Name: Avenida Carlota                             | Job Number: 8141                     |
| Road Segment: w/o Paseo de Valencia                    | Analyst: B. Lawson                   |

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  |   |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  |   |     |         |       |       |
|  |  | <b>Vehicle Mix</b>                            |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|  |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|  |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|  |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|  |  | Autos: 2.000                                  |     |         |       |       |
|  |  | Medium Trucks: 4.000                          |     |         |       |       |
|  |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|  |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|  |  | Autos: 93.723                                 |     |         |       |       |
|  |  | Medium Trucks: 93.680                         |     |         |       |       |
|  |  | Heavy Trucks: 93.723                          |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet              |  |   |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |   |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  |   |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  |   |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  |   |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  |   |     |         |       |       |
| Road Elevation: 0.0 feet                     |  |   |     |         |       |       |
| Road Grade: 0.0%                             |  |   |     |         |       |       |
| Left View: -90.0 degrees                     |  |   |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.03        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.27       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.22       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.8          | 62.9    | 61.1        | 55.1      | 63.7 | 64.3 |
| Medium Trucks: | 58.3          | 56.8    | 50.5        | 48.9      | 57.4 | 57.6 |
| Heavy Trucks:  | 58.8          | 57.3    | 48.3        | 49.6      | 57.9 | 58.0 |
| Vehicle Noise: | 66.5          | 64.7    | 61.7        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 231    | 497    |
| CNEL: | 53     | 115    | 248    | 534    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Job Number: 8141  
 Road Segment: b/w Paseo de Valencia and El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 68.0    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 815    |
| CNEL: | 88     | 189    | 407    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.30         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.94       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.89       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.4        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 58.9 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 283    | 609    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: n/o Commercentre Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 33,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.79         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.45       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.40       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.7 | 60.9 |
| Vehicle Noise: | 69.3          | 67.5    | 64.5        | 59.7      | 68.3 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 165    | 355    | 765    |
| CNEL: | 82     | 177    | 382    | 822    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.38         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -13.86       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.82       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.7          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 69.9          | 68.1    | 65.1        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 389    | 838    |
| CNEL: | 90     | 194    | 418    | 900    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 48,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,840 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.65         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.59       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.55       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.8      | 70.5 | 71.1 |
| Medium Trucks: | 64.8          | 63.3    | 56.9        | 55.4      | 63.8 | 64.1 |
| Heavy Trucks:  | 64.5          | 63.0    | 54.0        | 55.3      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.3    | 68.4        | 63.4      | 72.0 | 72.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 136    | 293    | 630    | 1,358  |
| CNEL: | 146    | 315    | 679    | 1,462  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: b/w Toledo Wy. and Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 56,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.31         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.93       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.88       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.2          | 70.3    | 68.6        | 62.5      | 71.1 | 71.7 |
| Medium Trucks: | 65.4          | 63.9    | 57.6        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.1          | 63.7    | 54.7        | 55.9      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 71.9    | 69.0        | 64.1      | 72.7 | 73.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 150    | 324    | 698    | 1,504  |
| CNEL: | 162    | 349    | 752    | 1,619  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 62,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 6,250 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.76         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.48       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.7          | 70.8    | 69.0        | 62.9      | 71.6 | 72.2 |
| Medium Trucks: | 65.9          | 64.4    | 58.0        | 56.5      | 64.9 | 65.2 |
| Heavy Trucks:  | 65.6          | 64.2    | 55.1        | 56.4      | 64.7 | 64.8 |
| Vehicle Noise: | 74.1          | 72.4    | 69.5        | 64.5      | 73.1 | 73.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 161    | 347    | 747    | 1,610  |
| CNEL: | 173    | 374    | 805    | 1,734  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 62,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 6,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.86       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.82       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.2        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 350    | 755    | 1,626  | 3,503  |
| CNEL: | 378    | 814    | 1,753  | 3,777  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: s/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 79,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 7,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.79         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.45       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.40       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.7          | 71.8    | 70.0        | 64.0      | 72.6 | 73.2 |
| Medium Trucks: | 66.9          | 65.4    | 59.1        | 57.5      | 66.0 | 66.2 |
| Heavy Trucks:  | 66.6          | 65.2    | 56.2        | 57.4      | 65.8 | 65.9 |
| Vehicle Noise: | 75.2          | 73.4    | 70.5        | 65.6      | 74.1 | 74.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 189    | 407    | 876    | 1,887  |
| CNEL: | 203    | 438    | 943    | 2,033  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: n/o I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 83,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 8,320 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 6.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.9          | 72.0    | 70.2        | 64.2      | 72.8 | 73.4 |
| Medium Trucks: | 67.1          | 65.6    | 59.3        | 57.7      | 66.2 | 66.4 |
| Heavy Trucks:  | 66.8          | 65.4    | 56.4        | 57.6      | 66.0 | 66.1 |
| Vehicle Noise: | 75.4          | 73.6    | 70.7        | 65.8      | 74.3 | 74.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 195    | 420    | 904    | 1,949  |
| CNEL: | 210    | 452    | 974    | 2,099  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Research Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,600 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.36         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.88       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.83       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.7        | 54.0      | 62.3 | 62.5 |
| Vehicle Noise: | 71.7          | 70.0    | 67.1        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 517    | 1,115  |
| CNEL: | 120    | 259    | 557    | 1,201  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: b/w Research Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 17,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,760 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.75        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.94       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.4      | 66.1 | 66.7 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.3 |
| Vehicle Noise: | 68.6          | 66.9    | 64.0        | 59.0      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 149    | 321    | 692    |
| CNEL: | 75     | 161    | 346    | 745    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: s/ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -1.08        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -18.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -22.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 68.3          | 66.5    | 63.7        | 58.7      | 67.3 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 305    | 657    |
| CNEL: | 71     | 153    | 329    | 708    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: b/w Lake Forest Dr. and Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 340 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 60 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 76 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -7.89        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -25.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -29.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.0          | 58.1    | 56.4        | 50.3      | 58.9 | 59.5 |
| Medium Trucks: | 53.2          | 51.7    | 45.4        | 43.8      | 52.3 | 52.5 |
| Heavy Trucks:  | 52.9          | 51.5    | 42.5        | 43.7      | 52.1 | 52.2 |
| Vehicle Noise: | 61.5          | 59.7    | 56.9        | 51.9      | 60.5 | 60.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 50     | 107    | 231    |
| CNEL: | 25     | 54     | 116    | 249    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Job Number: 8141  
 Road Segment: b/w Ridge Route Dr. and Laguna Canyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.87        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -20.10       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -24.06       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.4        | 55.3      | 63.9 | 64.5 |
| Medium Trucks: | 58.3          | 56.8    | 50.4        | 48.9      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.0          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.5          | 64.8    | 61.9        | 56.9      | 65.5 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 108    | 232    | 500    |
| CNEL: | 54     | 116    | 250    | 538    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.1          | 67.2    | 65.4        | 59.3      | 68.0 | 68.6 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.8    | 65.9        | 60.9      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 199    | 429    | 925    |
| CNEL: | 100    | 215    | 462    | 996    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 32,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.8          | 60.3    | 53.9        | 52.4      | 60.8 | 61.1 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.4        | 52.6      | 61.0 | 61.1 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 69.0 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 184    | 395    | 852    |
| CNEL: | 92     | 197    | 425    | 917    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o W. Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 29,200 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,920 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 96.607 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 96.566 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 96.608 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.83         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.36       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.4        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.6 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 372    | 802    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|   |  |
|---|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: Barranca Pkwy.<br>Road Segment: e/o Lake Rd. | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|---|--|

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  |   |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | <b>Vehicle Mix</b>                            |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  |   |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                     |  | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.33         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.91       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.87       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.1 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 160    | 344    | 742    |
| CNEL: | 80     | 172    | 370    | 798    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: b/w Creek Rd. and Lyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,490 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.14         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.05       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.7        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.8 | 60.0 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.2        | 59.3      | 67.9 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 155    | 335    | 721    |
| CNEL: | 78     | 167    | 360    | 775    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: w/o E. Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,490 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.14         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.05       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.7        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.8 | 60.0 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.2        | 59.3      | 67.9 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 155    | 335    | 721    |
| CNEL: | 78     | 167    | 360    | 775    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.60         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.64       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.59       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.1        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 167    | 359    | 774    |
| CNEL: | 83     | 179    | 386    | 832    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 17,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,790 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.29        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.53       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.49       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.2        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.4        | 49.9      | 58.3 | 58.6 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.7    | 62.8        | 57.9      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 125    | 268    | 578    |
| CNEL: | 62     | 134    | 289    | 622    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,810 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.25        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.48       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.44       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.5        | 49.9      | 58.4 | 58.6 |
| Heavy Trucks:  | 59.4          | 57.9    | 48.9        | 50.2      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.8    | 62.8        | 57.9      | 66.5 | 67.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 126    | 270    | 583    |
| CNEL: | 63     | 135    | 291    | 627    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 15,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,560 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.89        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.6        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.7 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 245    | 528    |
| CNEL: | 57     | 122    | 264    | 568    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 14,900 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 1,490 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 96.607 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 96.566 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 96.608 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.09        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.33       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.28       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.4      | 64.0 | 64.6 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.5 | 57.8 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.1        | 49.3      | 57.7 | 57.8 |
| Vehicle Noise: | 66.7          | 64.9    | 62.0        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 238    | 512    |
| CNEL: | 55     | 119    | 256    | 551    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: b/w Discovery and Banting      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 13,300 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,330 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.58        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.82       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.78       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.0          | 56.5    | 50.1        | 48.6      | 57.0 | 57.3 |
| Heavy Trucks:  | 58.0          | 56.6    | 47.6        | 48.8      | 57.2 | 57.3 |
| Vehicle Noise: | 66.2          | 64.4    | 61.5        | 56.6      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 102    | 220    | 474    |
| CNEL: | 51     | 110    | 237    | 510    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,840 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.17        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.37       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.0          | 64.1    | 62.3        | 56.3      | 64.9 | 65.5 |
| Medium Trucks: | 59.4          | 57.9    | 51.5        | 50.0      | 58.4 | 58.7 |
| Heavy Trucks:  | 59.4          | 58.0    | 49.0        | 50.2      | 58.6 | 58.7 |
| Vehicle Noise: | 67.6          | 65.8    | 62.9        | 58.0      | 66.6 | 67.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 59     | 127    | 273    | 589    |
| CNEL: | 63     | 137    | 294    | 634    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: b/w I-5 HOV Ramp and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,100 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.40         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.79       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.4        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 139    | 299    | 643    |
| CNEL: | 69     | 149    | 321    | 692    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: s/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 22,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,240 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.68         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.1      | 65.8 | 66.4 |
| Medium Trucks: | 60.3          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.9    | 49.8        | 51.1      | 59.4 | 59.6 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.9      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 145    | 312    | 672    |
| CNEL: | 72     | 156    | 335    | 723    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: n/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.00         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.24       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.20       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.1        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.0    | 64.0        | 59.2      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 152    | 327    | 705    |
| CNEL: | 76     | 163    | 352    | 759    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: e/o Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Job Number: 8141  
 Road Segment: w/o Marine Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.28         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.7      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.0          | 67.3    | 64.3        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 342    | 736    |
| CNEL: | 79     | 171    | 368    | 792    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy./Muirlands Bl.      Job Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.34         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.90       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.86       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.0 |
| Medium Trucks: | 59.9          | 58.4    | 52.0        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.3    | 63.4        | 58.5      | 67.1 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 137    | 296    | 637    |
| CNEL: | 69     | 148    | 318    | 686    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy      Job Number: 8141  
 Road Segment: e/o Sterling      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                             |     |         |       |       |
|--|--|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b>  |     |         |       |       |
| Average Daily Traffic (Adt): 16,100 vehicles | Autos: 15                                      |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                    |     |         |       |       |
| Peak Hour Volume: 1,610 vehicles             | Heavy Trucks (3+ Axles): 15                    |     |         |       |       |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                             |     |         |       |       |
| Near/Far Lane Distance: 52 feet              | VehicleType                                    | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                 |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%          |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%           |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>       |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                           |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006      Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>      |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 96.607                                  |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 96.566                          |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 96.608                           |     |         |       |       |
| Right View: 90.0 degrees                     |  |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.75        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.99       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.8        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.8          | 57.3    | 51.0        | 49.4      | 57.9 | 58.1 |
| Heavy Trucks:  | 58.9          | 57.4    | 48.4        | 49.6      | 58.0 | 58.1 |
| Vehicle Noise: | 67.0          | 65.2    | 62.3        | 57.4      | 66.0 | 66.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 116    | 250    | 539    |
| CNEL: | 58     | 125    | 269    | 580    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Job Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 25,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.62         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.1          | 66.4    | 63.3        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 640    |
| CNEL: | 69     | 148    | 319    | 687    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Job Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.19         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.05       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.01       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.7        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 59.8          | 58.4    | 49.3        | 50.6      | 58.9 | 59.1 |
| Vehicle Noise: | 68.0          | 66.2    | 63.2        | 58.4      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 134    | 289    | 623    |
| CNEL: | 67     | 144    | 311    | 670    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,670 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.44         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.80       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.75       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.5        | 59.6      | 68.2 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 350    | 755    |
| CNEL: | 81     | 175    | 377    | 812    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 19,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.12         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.12       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.07       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.2        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 286    | 617    |
| CNEL: | 66     | 143    | 308    | 663    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Job Number: 8141  
 Road Segment: e/o Eastwood      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 14,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.30        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.54       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.49       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.2        | 55.2      | 63.8 | 64.4 |
| Medium Trucks: | 58.3          | 56.8    | 50.4        | 48.9      | 57.3 | 57.6 |
| Heavy Trucks:  | 58.3          | 56.9    | 47.9        | 49.1      | 57.5 | 57.6 |
| Vehicle Noise: | 66.5          | 64.7    | 61.7        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 230    | 496    |
| CNEL: | 53     | 115    | 248    | 533    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Canyon View Av.      Job Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 7,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 720 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.84        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.07       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.03       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.0          | 59.1    | 57.3        | 51.3      | 59.9 | 60.5 |
| Medium Trucks: | 54.5          | 53.0    | 46.7        | 45.1      | 53.6 | 53.8 |
| Heavy Trucks:  | 55.0          | 53.5    | 44.5        | 45.7      | 54.1 | 54.2 |
| Vehicle Noise: | 62.7          | 60.9    | 57.9        | 53.1      | 61.6 | 62.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 60     | 128    | 277    |
| CNEL: | 30     | 64     | 138    | 297    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.      Job Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,830 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.70         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.54       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.50       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.7        | 58.6      | 67.3 | 67.9 |
| Medium Trucks: | 61.7          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.2    | 65.2        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 182    | 392    | 844    |
| CNEL: | 91     | 196    | 421    | 908    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.      Job Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 41,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,120 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.33         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.91       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.87       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 234    | 503    | 1,084  |
| CNEL: | 117    | 251    | 541    | 1,166  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Creek Rd.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,300 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 430 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -4.52        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -21.76       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -25.72       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 54.0          | 52.1    | 50.3        | 44.3      | 52.9 | 53.5 |
| Medium Trucks: | 48.2          | 46.7    | 40.3        | 38.8      | 47.2 | 47.5 |
| Heavy Trucks:  | 50.1          | 48.6    | 39.6        | 40.9      | 49.2 | 49.3 |
| Vehicle Noise: | 56.2          | 54.5    | 51.1        | 46.7      | 55.2 | 55.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 10     | 22     | 48     | 103    |
| CNEL: | 11     | 24     | 51     | 110    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,500 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.86         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.37       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.33       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.0 | 61.3 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.2        | 52.5      | 60.8 | 61.0 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 191    | 411    | 886    |
| CNEL: | 95     | 206    | 443    | 954    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 28,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,840 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.33         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.5          | 61.0    | 54.6        | 53.1      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.7          | 68.9    | 66.1        | 61.1      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 95     | 205    | 442    | 952    |
| CNEL: | 103    | 221    | 476    | 1,025  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,670 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.45         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.79       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.75       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 243    | 524    | 1,129  |
| CNEL: | 122    | 262    | 564    | 1,216  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.88         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.36       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.32       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.1      | 68.7 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.1 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 62.0 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 223    | 480    | 1,035  |
| CNEL: | 111    | 240    | 517    | 1,115  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: s/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.29       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.1        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.6        | 63.7      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 141    | 304    | 655    | 1,412  |
| CNEL: | 152    | 328    | 706    | 1,520  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 52,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,200 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.96         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.28       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.3        | 55.6      | 63.9 | 64.1 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 307    | 661    | 1,424  |
| CNEL: | 153    | 331    | 712    | 1,534  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: s/o I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 57,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,700 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.36         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.88       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.5      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.7        | 56.0      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 326    | 703    | 1,514  |
| CNEL: | 163    | 351    | 757    | 1,631  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: n/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 51,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.94         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.25       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.6      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,421  |
| CNEL: | 153    | 330    | 710    | 1,530  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w Walnut Av. and Deerfiled Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.64       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.60       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 290    | 625    | 1,347  |
| CNEL: | 145    | 312    | 673    | 1,450  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w Deerfield Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.12         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.11       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.07       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.4        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 270    | 582    | 1,253  |
| CNEL: | 135    | 291    | 626    | 1,349  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w ICD and Warner Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 46,500 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.76       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 285    | 614    | 1,322  |
| CNEL: | 142    | 307    | 661    | 1,424  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w Warner Av. and Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 47,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,720 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.54         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.70       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.66       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.8        | 61.7      | 70.3 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.8        | 55.3      | 63.7 | 64.0 |
| Heavy Trucks:  | 64.4          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.2    | 68.3        | 63.3      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 134    | 288    | 620    | 1,335  |
| CNEL: | 144    | 310    | 668    | 1,438  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.92         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.5    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.7        | 63.7      | 72.3 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 305    | 657    | 1,415  |
| CNEL: | 152    | 328    | 707    | 1,524  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w Alton Pkwy. and Main St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 52,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,210 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.97         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.27       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.3        | 55.6      | 63.9 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 307    | 662    | 1,426  |
| CNEL: | 154    | 331    | 713    | 1,536  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w Main St. and San Leandro      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,260 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.01         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.23       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.18       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.4 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 309    | 666    | 1,435  |
| CNEL: | 155    | 333    | 718    | 1,546  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Job Number: 8141  
 Road Segment: b/w San Leandro and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 58,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.49         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.75       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.71       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.8        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.5 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 333    | 717    | 1,544  |
| CNEL: | 166    | 358    | 772    | 1,663  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |        | NOISE MODEL INPUTS                            |     |         |                       |       |        |  |
|--|--|--------|---|-----|---------|-----------------------|-------|--------|--|
| <b>Highway Data</b>  |  |        | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |                       |       |        |  |
| Average Daily Traffic (Adt): 12,200 vehicles   |  |        | Autos: 15                                     |     |         |                       |       |        |  |
| Peak Hour Percentage: 10%  |  |        | Medium Trucks (2 Axles): 15                   |     |         |                       |       |        |  |
| Peak Hour Volume: 1,220 vehicles   |  |        | Heavy Trucks (3+ Axles): 15                   |     |         |                       |       |        |  |
| Vehicle Speed: 50 mph  |  |        | <b>Vehicle Mix</b>                            |     |         |                       |       |        |  |
| Near/Far Lane Distance: 50 feet  |  |        |   |     |         |                       |       |        |  |
| <b>Site Data</b>   |  |        | VehicleType                                   | Day | Evening | Night                 | Daily |        |  |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |        | Autos:  |     | 77.5%   | 12.9%                 | 9.6%  | 97.42% |  |
|  |  |        | Medium Trucks:                                |     | 84.8%   | 4.9%                  | 10.3% | 1.84%  |  |
|  |  |        | Heavy Trucks:                                 |     | 86.5%   | 2.7%                  | 10.8% | 0.74%  |  |
|  |  |        | <b>Noise Source Elevations (in feet)</b>      |     |         |                       |       |        |  |
|  |  |        | Autos:  |     | 2.000   |                       |       |        |  |
|  |  |        | Medium Trucks:                                |     | 4.000   |                       |       |        |  |
|  |  |        | Heavy Trucks:                                 |     | 8.006   | Grade Adjustment: 0.0 |       |        |  |
|  |  |        | <b>Lane Equivalent Distance (in feet)</b>     |     |         |                       |       |        |  |
|  |  |        | Autos:  |     | 96.871  |                       |       |        |  |
|  |  |        | Medium Trucks:                                |     | 96.830  |                       |       |        |  |
| Heavy Trucks:  |  | 96.871 |   |     |         |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.54        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.78       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.74       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.0          | 61.1    | 59.4        | 53.3      | 61.9 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.0          | 55.6    | 46.6        | 47.8      | 56.2 | 56.3 |
| Vehicle Noise: | 64.7          | 63.0    | 59.9        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 177    | 381    |
| CNEL: | 41     | 88     | 190    | 409    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,160 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.18        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.42       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.37       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 48.0      | 56.4 | 56.7 |
| Heavy Trucks:  | 57.4          | 56.0    | 47.0        | 48.2      | 56.6 | 56.7 |
| Vehicle Noise: | 65.6          | 63.8    | 60.9        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 201    | 433    |
| CNEL: | 47     | 100    | 216    | 466    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Job Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |  |        |         |                       |        |
|--|--|--|--|---|--|--------|---------|-----------------------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |                       |        |
| Average Daily Traffic (Adt): 11,500 vehicles |  |  |  | Autos: 15                                     |  |        |         |                       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |  |        |         |                       |        |
| Peak Hour Volume: 1,150 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |  |        |         |                       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |  |        |         |                       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  |   |  |        |         |                       |        |
| <b>Site Data</b>                             |  |  |  | VehicleType                                   |  | Day    | Evening | Night                 | Daily  |
|  |  |  |  | Autos:  |  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |
|  |  |  |  | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |
|  |  |  |  | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |
|  |  |  |  | <b>Noise Source Elevations (in feet)</b>      |  |        |         |                       |        |
| Barrier Height: 0.0 feet                     |  |  |  | Autos:  |  | 2.000  |         |                       |        |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Medium Trucks:                                |  | 4.000  |         |                       |        |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | Heavy Trucks:                                 |  | 8.006  |         | Grade Adjustment: 0.0 |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |                       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  |   |  |        |         |                       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Autos:  |  | 96.607 |         |                       |        |
| Pad Elevation: 0.0 feet                      |  |  |  | Medium Trucks:                                |  | 96.566 |         |                       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Heavy Trucks:                                 |  | 96.608 |         |                       |        |
| Road Grade: 0.0%                             |  |  |  |   |  |        |         |                       |        |
| Left View: -90.0 degrees                     |  |  |  |   |  |        |         |                       |        |
| Right View: 90.0 degrees                     |  |  |  |   |  |        |         |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.22        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.45       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.41       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.4          | 56.0    | 46.9        | 48.2      | 56.5 | 56.7 |
| Vehicle Noise: | 65.5          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |                                      |
|--|--------------------------------------|
| Scenario: Post 2030 - 2012 Modified Project (Option 1) | Project Name: 2012 Great Park GPA/ZC |
| Road Name: El Camino Real                              | Job Number: 8141                     |
| Road Segment: e/o Tustin Ranch Rd.                     | Analyst: B. Lawson                   |

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 16,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.21        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.45       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.40       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.2          | 56.7    | 50.3        | 48.7      | 57.2 | 57.4 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.1        | 49.4      | 57.7 | 57.9 |
| Vehicle Noise: | 66.3          | 64.5    | 61.5        | 56.7      | 65.3 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 104    | 224    | 483    |
| CNEL: | 52     | 112    | 241    | 519    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real      Job Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  |   |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  |   |     |         |       |       |
| Left View: -90.0 degrees                     |  | Autos: 96.607                                 |     |         |       |       |
| Right View: 90.0 degrees                     |  | Medium Trucks: 96.566                         |     |         |       |       |
|  |  | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 76     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real N.      Job Number: 8141  
 Road Segment: s/o Bryan Ave.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                     |        |                       |       |        |  |
|---|----------------|--|--------|-----------------------|-------|--------|--|
| Highway Data  |                | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |  |
| Average Daily Traffic (Adt):  | 7,800 vehicles | Autos: 15                              |        |                       |       |        |  |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15            |        |                       |       |        |  |
| Peak Hour Volume:   | 780 vehicles   | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |  |
| Vehicle Speed:  | 55 mph         | Vehicle Mix                            |        |                       |       |        |  |
| Near/Far Lane Distance:   | 52 feet        |  |        |                       |       |        |  |
| Site Data   |                | VehicleType                            | Day    | Evening               | Night | Daily  |  |
|   |                | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |  |
|   |                | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |  |
|   |                | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |  |
|   |                | Noise Source Elevations (in feet)      |        |                       |       |        |  |
| Barrier Height: 0.0 feet<br>Barrier Type (0-Wall, 1-Berm): 0.0<br>Centerline Dist. to Barrier: 100.0 feet<br>Centerline Dist. to Observer: 100.0 feet<br>Barrier Distance to Observer: 0.0 feet<br>Observer Height (Above Pad): 5.0 feet<br>Pad Elevation: 0.0 feet<br>Road Elevation: 0.0 feet<br>Road Grade: 0.0%<br>Left View: -90.0 degrees<br>Right View: 90.0 degrees |                | Autos:                                 | 2.000  |                       |       |        |  |
|   |                | Medium Trucks:                         | 4.000  |                       |       |        |  |
|   |                | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |  |
|   |                | Lane Equivalent Distance (in feet)     |        |                       |       |        |  |
|   |                | Autos:                                 | 96.607 |                       |       |        |  |
|   |                | Medium Trucks:                         | 96.566 |                       |       |        |  |
|   |                | Heavy Trucks:                          | 96.608 |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.90        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.10       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.3          | 60.4    | 58.6        | 52.6      | 61.2 | 61.8 |
| Medium Trucks: | 55.7          | 54.2    | 47.8        | 46.3      | 54.7 | 55.0 |
| Heavy Trucks:  | 55.7          | 54.3    | 45.2        | 46.5      | 54.9 | 55.0 |
| Vehicle Noise: | 63.9          | 62.1    | 59.1        | 54.3      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 72     | 154    | 332    |
| CNEL: | 36     | 77     | 166    | 358    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Portola Pkwy./S. Margarita Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.4 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.1      | 59.4 | 59.5 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.8      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 311    | 670    |
| CNEL: | 72     | 155    | 334    | 720    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: s/o Portola Pkwy./S. Margarita Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 42,900 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,290 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.50         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.74       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.69       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.4      | 69.1 | 69.7 |
| Medium Trucks: | 63.5          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 517    | 1,114  |
| CNEL: | 120    | 258    | 556    | 1,198  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 714    |
| CNEL: | 77     | 165    | 356    | 768    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |  |        |         |                       |        |
|--|--|---|--|--------|---------|-----------------------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |                       |        |
| Average Daily Traffic (Adt): 43,700 vehicles |  | Autos: 15                                     |  |        |         |                       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |  |        |         |                       |        |
| Peak Hour Volume: 4,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |  |        |         |                       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |  |        |         |                       |        |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   |  | Day    | Evening | Night                 | Daily  |
| <b>Site Data</b>                             |  | Autos:  |  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |  |        |         |                       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  |  | 2.000  |         |                       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                |  | 4.000  |         |                       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 |  | 8.006  |         | Grade Adjustment: 0.0 |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |                       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  |  | 84.853 |         |                       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                |  | 84.806 |         |                       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 |  | 84.853 |         |                       |        |
| Right View: 90.0 degrees                     |  |   |  |        |         |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.20         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.03       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.99       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.1        | 55.4      | 63.7 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 298    | 642    | 1,383  |
| CNEL: | 149    | 321    | 692    | 1,490  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.23         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.00       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.96       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 645    | 1,390  |
| CNEL: | 150    | 322    | 695    | 1,497  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 46,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,600 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 84.853 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 84.806 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 84.853 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.43         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.81       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.77       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 308    | 664    | 1,432  |
| CNEL: | 154    | 332    | 716    | 1,542  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.79         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.45       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.40       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.5      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.7        | 56.0      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 326    | 702    | 1,513  |
| CNEL: | 163    | 351    | 757    | 1,630  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 65,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.93         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.31       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.27       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.4          | 71.5    | 69.7        | 63.7      | 72.3 | 72.9 |
| Medium Trucks: | 66.6          | 65.1    | 58.8        | 57.2      | 65.7 | 65.9 |
| Heavy Trucks:  | 66.3          | 64.9    | 55.9        | 57.1      | 65.5 | 65.6 |
| Vehicle Noise: | 74.9          | 73.1    | 70.2        | 65.3      | 73.8 | 74.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 180    | 388    | 837    | 1,803  |
| CNEL: | 194    | 418    | 901    | 1,942  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Avenida Carlota      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 44,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,470 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.68         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.56       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.51       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 247    | 531    | 1,145  |
| CNEL: | 123    | 265    | 572    | 1,231  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.89         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.35       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.7    | 64.9        | 58.8      | 67.5 | 68.1 |
| Medium Trucks: | 61.9          | 60.4    | 54.1        | 52.5      | 61.0 | 61.2 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.1          | 68.4    | 65.4        | 60.5      | 69.1 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 87     | 187    | 404    | 870    |
| CNEL: | 94     | 202    | 434    | 936    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 33,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,300 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.36         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.88       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.83       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.4        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.4          | 60.9    | 54.5        | 53.0      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.4          | 61.0    | 52.0        | 53.2      | 61.6 | 61.7 |
| Vehicle Noise: | 70.6          | 68.8    | 65.9        | 61.0      | 69.6 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 94     | 201    | 434    | 935    |
| CNEL: | 101    | 217    | 467    | 1,006  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 32,200 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 3,220 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.26         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.98       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.94       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.3        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.3          | 60.9    | 51.9        | 53.1      | 61.5 | 61.6 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.5 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 427    | 920    |
| CNEL: | 99     | 213    | 459    | 990    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o Aliso Creek Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,650 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.41         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.83       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.78       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.3      | 67.0 | 67.6 |
| Medium Trucks: | 61.5          | 59.9    | 53.6        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.0        | 52.3      | 60.6 | 60.8 |
| Vehicle Noise: | 69.6          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 375    | 808    |
| CNEL: | 87     | 187    | 403    | 869    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: n/o SR-73      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,010 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.96         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.28       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.23       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.6          | 66.7    | 65.0        | 58.9      | 67.5 | 68.1 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.6        | 52.8      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.4    | 65.5        | 60.6      | 69.2 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 189    | 408    | 879    |
| CNEL: | 95     | 204    | 439    | 946    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Job Number: 8141  
 Road Segment: s/o SR-73      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.10         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.14       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.10       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.2        | 55.2      | 63.8 | 64.4 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.5 | 57.7 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.4        | 49.7      | 58.0 | 58.2 |
| Vehicle Noise: | 66.6          | 64.8    | 61.8        | 57.0      | 65.6 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 109    | 235    | 506    |
| CNEL: | 54     | 117    | 252    | 544    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.      Job Number: 8141  
 Road Segment: b/w Gateway Bl. and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 870 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.43        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.67       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.62       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.8          | 60.9    | 59.1        | 53.0      | 61.7 | 62.3 |
| Medium Trucks: | 56.1          | 54.6    | 48.3        | 46.7      | 55.2 | 55.4 |
| Heavy Trucks:  | 56.2          | 54.8    | 45.7        | 47.0      | 55.3 | 55.5 |
| Vehicle Noise: | 64.3          | 62.6    | 59.6        | 54.7      | 63.3 | 63.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 77     | 166    | 358    |
| CNEL: | 38     | 83     | 179    | 385    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.      Job Number: 8141  
 Road Segment: b/w Pacifica and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.2          | 54.7    | 48.4        | 46.8      | 55.3 | 55.5 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.8        | 47.1      | 55.4 | 55.6 |
| Vehicle Noise: | 64.4          | 62.7    | 59.7        | 54.8      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 78     | 168    | 363    |
| CNEL: | 39     | 84     | 181    | 391    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Job Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 720 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.25        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.49       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.44       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.3          | 53.8    | 47.5        | 45.9      | 54.4 | 54.6 |
| Heavy Trucks:  | 55.4          | 53.9    | 44.9        | 46.2      | 54.5 | 54.6 |
| Vehicle Noise: | 63.5          | 61.8    | 58.8        | 53.9      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 68     | 146    | 315    |
| CNEL: | 34     | 73     | 157    | 339    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Job Number: 8141  
 Road Segment: w/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 2,800 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 280 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -8.35        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -25.59       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -29.55       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.8          | 55.9    | 54.2        | 48.1      | 56.7 | 57.3 |
| Medium Trucks: | 51.2          | 49.7    | 43.4        | 41.8      | 50.3 | 50.5 |
| Heavy Trucks:  | 51.3          | 49.8    | 40.8        | 42.0      | 50.4 | 50.5 |
| Vehicle Noise: | 59.4          | 57.7    | 54.7        | 49.8      | 58.4 | 58.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 17     | 36     | 78     | 168    |
| CNEL: | 18     | 39     | 84     | 181    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenn Ranch Rd.      Job Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,890 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.8 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 68.7          | 66.9    | 63.9        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 699    |
| CNEL: | 75     | 162    | 349    | 751    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenwood Dr./Indian Creek      Job Number: 8141  
 Road Segment: w/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.73        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.97       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.92       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.1          | 61.2    | 59.4        | 53.4      | 62.0 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.8        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.1          | 55.6    | 46.6        | 47.9      | 56.2 | 56.3 |
| Vehicle Noise: | 64.8          | 63.0    | 60.0        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 178    | 383    |
| CNEL: | 41     | 89     | 191    | 411    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Handy Creek Rd.      Job Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 2,100 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 210 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 40 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 12 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 99.865 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 99.825 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 99.865 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -8.22        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -25.46       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -29.41       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.5          | 50.6    | 48.8        | 42.8      | 51.4 | 52.0 |
| Medium Trucks: | 46.5          | 44.9    | 38.6        | 37.0      | 45.5 | 45.7 |
| Heavy Trucks:  | 47.8          | 46.4    | 37.3        | 38.6      | 46.9 | 47.0 |
| Vehicle Noise: | 54.5          | 52.8    | 49.5        | 44.9      | 53.5 | 53.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 17     | 37     | 79     |
| CNEL: | 8      | 18     | 39     | 85     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Job Number: 8141  
 Road Segment: s/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -0.25        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -17.49       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -21.45       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.6        | 48.5      | 57.2 | 57.8 |
| Medium Trucks: | 52.5          | 51.0    | 44.6        | 43.1      | 51.5 | 51.8 |
| Heavy Trucks:  | 54.3          | 52.9    | 43.9        | 45.1      | 53.5 | 53.6 |
| Vehicle Noise: | 60.5          | 58.8    | 55.3        | 50.9      | 59.5 | 59.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 43     | 92     | 199    |
| CNEL: | 21     | 46     | 98     | 212    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Job Number: 8141  
 Road Segment: n/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.0          | 56.5    | 47.5        | 48.8      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.4    | 61.4        | 56.5      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 218    | 470    |
| CNEL: | 51     | 109    | 235    | 505    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Job Number: 8141  
 Road Segment: b/w Edinger Av. And Paseo Westpark      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.98        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.17       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.2          | 63.3    | 61.5        | 55.5      | 64.1 | 64.7 |
| Medium Trucks: | 58.6          | 57.1    | 50.7        | 49.2      | 57.6 | 57.9 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 66.8          | 65.0    | 62.1        | 57.2      | 65.8 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 242    | 521    |
| CNEL: | 56     | 121    | 260    | 560    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Hubble      Job Number: 8141  
 Road Segment: n/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 2,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 200 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -9.81        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.05       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.01       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.4          | 54.5    | 52.7        | 46.7      | 55.3 | 55.9 |
| Medium Trucks: | 49.8          | 48.3    | 41.9        | 40.3      | 48.8 | 49.0 |
| Heavy Trucks:  | 49.8          | 48.4    | 39.3        | 40.6      | 48.9 | 49.1 |
| Vehicle Noise: | 58.0          | 56.2    | 53.2        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: b/w Newport and Red Hill      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 55,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,550 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.62         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.62       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.57       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.7          | 63.2    | 56.8        | 55.3      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.2        | 55.5      | 63.8 | 64.0 |
| Vehicle Noise: | 72.9          | 71.1    | 68.1        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 285    | 614    | 1,322  |
| CNEL: | 142    | 306    | 660    | 1,423  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: b/w Red Hill and Browning      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 54,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,410 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 4.92         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -12.31       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -16.27       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.3          | 61.8    | 55.4        | 53.9      | 62.3 | 62.6 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 71.4          | 69.7    | 66.6        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,062  |
| CNEL: | 114    | 246    | 530    | 1,141  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 48,200 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 4,820 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.01         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.23       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.19       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 60.9      | 69.6 | 70.2 |
| Medium Trucks: | 64.1          | 62.5    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 64.1          | 62.7    | 53.6        | 54.9      | 63.2 | 63.4 |
| Vehicle Noise: | 72.2          | 70.5    | 67.5        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 259    | 559    | 1,204  |
| CNEL: | 129    | 279    | 601    | 1,295  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.43         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.81       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.76       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.4        | 60.4      | 69.0 | 69.6 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 237    | 511    | 1,102  |
| CNEL: | 119    | 255    | 550    | 1,185  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 45,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.37         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.87       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.82       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.3 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 280    | 604    | 1,301  |
| CNEL: | 140    | 302    | 650    | 1,401  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: b/w SR-261 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,430 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.26         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.97       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.93       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.5        | 61.5      | 70.1 | 70.7 |
| Medium Trucks: | 64.4          | 62.9    | 56.5        | 55.0      | 63.4 | 63.7 |
| Heavy Trucks:  | 64.1          | 62.7    | 53.6        | 54.9      | 63.2 | 63.4 |
| Vehicle Noise: | 72.6          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 128    | 276    | 594    | 1,280  |
| CNEL: | 138    | 297    | 640    | 1,379  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o SR-261 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 45,600 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.85       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.7        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 281    | 606    | 1,305  |
| CNEL: | 141    | 303    | 652    | 1,405  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,900 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.71         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.53       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.48       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 67.0        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.1 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 253    | 546    | 1,176  |
| CNEL: | 127    | 273    | 588    | 1,266  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.77         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.47       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.43       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 255    | 550    | 1,186  |
| CNEL: | 128    | 275    | 593    | 1,277  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Yale Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 42,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.4        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.9        | 62.9      | 71.5 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 270    | 581    | 1,251  |
| CNEL: | 135    | 290    | 625    | 1,347  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 37,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,770 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.56         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.68       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.8        | 60.7      | 69.4 | 70.0 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.7 | 63.0 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.9          | 70.2    | 67.3        | 62.4      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 248    | 534    | 1,150  |
| CNEL: | 124    | 267    | 575    | 1,238  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.43         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.80       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.76       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 243    | 523    | 1,127  |
| CNEL: | 121    | 262    | 563    | 1,214  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Groveland      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,690 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.8        | 54.1      | 62.4 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 526    | 1,133  |
| CNEL: | 122    | 263    | 567    | 1,220  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 39,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.77         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.47       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.43       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 255    | 550    | 1,186  |
| CNEL: | 128    | 275    | 593    | 1,277  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o SR-133 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 43,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,330 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.16         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.07       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.03       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.5        | 54.8      | 63.1 | 63.3 |
| Vehicle Noise: | 72.6          | 70.8    | 67.9        | 63.0      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 272    | 585    | 1,261  |
| CNEL: | 136    | 293    | 630    | 1,358  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 531    | 1,143  |
| CNEL: | 123    | 265    | 572    | 1,231  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 40,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.42       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.37       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.1        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 64.0          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.2        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.6        | 62.6      | 71.2 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 258    | 555    | 1,196  |
| CNEL: | 129    | 277    | 598    | 1,288  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o A St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 40,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.86         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.37       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.33       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.0          | 62.5    | 56.1        | 54.6      | 63.0 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.2        | 54.5      | 62.8 | 63.0 |
| Vehicle Noise: | 72.2          | 70.5    | 67.6        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 259    | 559    | 1,204  |
| CNEL: | 130    | 279    | 602    | 1,297  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Z St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 46,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.46         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.73       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.6 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 284    | 613    | 1,320  |
| CNEL: | 142    | 306    | 660    | 1,422  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Z St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 48,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.61         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.63       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.58       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.9        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 72.0 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 291    | 627    | 1,350  |
| CNEL: | 145    | 313    | 675    | 1,454  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o LQ St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 45,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,560 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.85       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.7        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 281    | 606    | 1,305  |
| CNEL: | 141    | 303    | 652    | 1,405  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o LQ St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 49,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,940 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.74         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.50       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.46       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 68.0        | 61.9      | 70.5 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 63.9 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 73.1          | 71.4    | 68.5        | 63.5      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 297    | 639    | 1,376  |
| CNEL: | 148    | 319    | 688    | 1,483  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 51,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.94         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.25       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.6      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,421  |
| CNEL: | 153    | 330    | 710    | 1,530  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 42,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,240 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.07         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.17       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.12       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 268    | 577    | 1,243  |
| CNEL: | 134    | 288    | 621    | 1,339  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD/Edinger Av.      Job Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.52         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.72       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.67       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.0        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 382    | 822    |
| CNEL: | 88     | 191    | 410    | 884    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |  |
|--|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: ICD/Edinger Av.<br>Road Segment: e/o Jamboree | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|--|--|

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  |   |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | <b>Vehicle Mix</b>                            |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  |   |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  | Autos: 89.850                                 |     |         |       |       |
| Left View: -90.0 degrees                     |  | Medium Trucks: 89.805                         |     |         |       |       |
| Right View: 90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 58.9      | 67.6 | 68.2 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 410    | 883    |
| CNEL: | 95     | 205    | 441    | 950    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: e/o Hearthstone Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.1      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.6    | 65.7        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 97     | 208    | 449    | 966    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.14       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.10       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.3        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 426    | 918    |
| CNEL: | 99     | 213    | 459    | 989    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Yale Av. And Fontaine Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 28,800 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,880 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 60 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 76 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 92.547 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 92.504 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 92.547 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.6      | 68.2 | 68.8 |
| Medium Trucks: | 62.5          | 61.0    | 54.7        | 53.1      | 61.6 | 61.8 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 207    | 446    | 961    |
| CNEL: | 103    | 223    | 480    | 1,035  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |                                      |
|--|--------------------------------------|
| Scenario: Post 2030 - 2012 Modified Project (Option 1) | Project Name: 2012 Great Park GPA/ZC |
| Road Name: ICD   | Job Number: 8141                     |
| Road Segment: e/o Jeffrey Rd.                          | Analyst: B. Lawson                   |

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 41,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet              |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.98         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.26       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.21       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.3        | 54.6      | 62.9 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,226  |
| CNEL: | 132    | 284    | 613    | 1,320  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 26,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.97         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.27       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.3        | 52.6      | 60.9 | 61.1 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 418    | 900    |
| CNEL: | 97     | 209    | 450    | 969    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: e/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.30        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.49       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 60.8          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 160    | 344    | 741    |
| CNEL: | 80     | 172    | 370    | 798    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Laguna Canyon Rd. and Discovery      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 17,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,790 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.67        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.87       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 66.9    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 700    |
| CNEL: | 75     | 162    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: w/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.26         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.93       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.4      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.6          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 375    | 808    |
| CNEL: | 87     | 187    | 404    | 870    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Barranca Pkwy. and Gateway Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.3        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 841    |
| CNEL: | 91     | 195    | 421    | 906    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Gateway Bl.and Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 20,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,090 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 167    | 360    | 776    |
| CNEL: | 84     | 180    | 388    | 836    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Alton Pkwy.and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 34,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,490 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.23         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.01       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.97       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.5        | 60.4      | 69.0 | 69.6 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.0          | 61.6    | 52.6        | 53.8      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.8    | 67.0        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 235    | 507    | 1,092  |
| CNEL: | 118    | 253    | 546    | 1,176  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Pacifica and Enterprise Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,510 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.25         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.99       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.94       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.4      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.6    | 52.6        | 53.9      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.9    | 67.0        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 236    | 509    | 1,096  |
| CNEL: | 118    | 254    | 548    | 1,180  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Enterprise and I-405 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.9          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.7    | 68.8        | 63.8      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 310    | 669    | 1,441  |
| CNEL: | 155    | 334    | 720    | 1,552  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Research Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 13,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,340 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | -2.28        | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -19.52       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -23.47       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.5        | 61.4      | 70.1 | 70.7 |
| Medium Trucks: | 64.3          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.6          | 70.8    | 68.0        | 63.0      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 272    | 586    | 1,262  |
| CNEL: | 136    | 293    | 631    | 1,360  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Research Dr. and Hubble      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.57         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.67       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.6    | 64.8        | 58.8      | 67.4 | 68.0 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.4          | 60.0    | 50.9        | 52.2      | 60.5 | 60.7 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 182    | 393    | 846    |
| CNEL: | 91     | 196    | 423    | 911    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Hubble and Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.28         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 810    |
| CNEL: | 87     | 188    | 405    | 872    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Bake Pkwy. and Muller      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,120 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.06         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.18       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.13       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.2      | 66.9 | 67.5 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.4          | 67.7    | 64.8        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 169    | 364    | 783    |
| CNEL: | 84     | 182    | 392    | 843    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: b/w Muller and Tesla      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,060 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.06        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.26       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 69.3          | 67.6    | 64.7        | 59.7      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 166    | 357    | 768    |
| CNEL: | 83     | 178    | 384    | 827    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,010 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.17        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.1        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 69.2          | 67.4    | 64.6        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 756    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: n/o Chapman/Santiago Cyn.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,120 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.80       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.75       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 323    | 696    |
| CNEL: | 75     | 161    | 348    | 749    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Chapman Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 15,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,520 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.00        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.24       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.20       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.7          | 63.8    | 62.0        | 55.9      | 64.6 | 65.2 |
| Medium Trucks: | 59.0          | 57.5    | 51.2        | 49.6      | 58.1 | 58.3 |
| Heavy Trucks:  | 59.1          | 57.7    | 48.6        | 49.9      | 58.2 | 58.4 |
| Vehicle Noise: | 67.2          | 65.5    | 62.5        | 57.6      | 66.2 | 66.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 56     | 120    | 259    | 558    |
| CNEL: | 60     | 129    | 278    | 600    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Canyon View Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.3          | 59.8    | 53.4        | 51.9      | 60.3 | 60.6 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.5          | 67.7    | 64.7        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 79     | 169    | 365    | 785    |
| CNEL: | 84     | 182    | 392    | 845    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: n/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 27,300 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,730 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.54         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.70       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.66       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 178    | 382    | 824    |
| CNEL: | 89     | 191    | 411    | 886    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,740 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.55         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.68       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.64       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.8 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 178    | 383    | 826    |
| CNEL: | 89     | 191    | 412    | 889    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,750 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.57         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.67       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.62       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.6        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.7          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.8 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 178    | 384    | 828    |
| CNEL: | 89     | 192    | 413    | 891    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 37,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,750 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.19         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -15.05       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -19.00       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.6          | 73.7    | 72.0        | 65.9      | 74.5 | 75.1 |
| Medium Trucks: | 68.7          | 67.2    | 60.9        | 59.3      | 67.8 | 68.0 |
| Heavy Trucks:  | 68.1          | 66.7    | 57.6        | 58.9      | 67.2 | 67.3 |
| Vehicle Noise: | 77.0          | 75.3    | 72.4        | 67.4      | 76.0 | 76.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 251    | 540    | 1,163  | 2,506  |
| CNEL: | 270    | 582    | 1,254  | 2,701  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 39,200 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 3,920 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 65 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 175 feet             |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 48.505 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 48.423 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 48.506 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -14.85       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -18.81       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.8          | 73.9    | 72.2        | 66.1      | 74.7 | 75.3 |
| Medium Trucks: | 68.9          | 67.4    | 61.0        | 59.5      | 68.0 | 68.2 |
| Heavy Trucks:  | 68.3          | 66.8    | 57.8        | 59.1      | 67.4 | 67.5 |
| Vehicle Noise: | 77.2          | 75.4    | 72.6        | 67.6      | 76.2 | 76.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 258    | 556    | 1,198  | 2,581  |
| CNEL: | 278    | 599    | 1,291  | 2,782  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: b/w El Camino Real and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 61,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 6,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.34         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.90       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.85       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.1        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 69.9 | 70.2 |
| Heavy Trucks:  | 70.2          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.1 | 78.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 348    | 751    | 1,617  | 3,485  |
| CNEL: | 376    | 809    | 1,744  | 3,757  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: n/o Michelle Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 60,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.26         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.98       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.93       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.7          | 75.8    | 74.0        | 68.0      | 76.6 | 77.2 |
| Medium Trucks: | 70.8          | 69.3    | 62.9        | 61.4      | 69.8 | 70.1 |
| Heavy Trucks:  | 70.1          | 68.7    | 59.7        | 60.9      | 69.3 | 69.4 |
| Vehicle Noise: | 79.1          | 77.3    | 74.5        | 69.5      | 78.1 | 78.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 344    | 742    | 1,598  | 3,443  |
| CNEL: | 371    | 800    | 1,723  | 3,712  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Michelle Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 58,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,860 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.48         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.76       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.7        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.4 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 332    | 716    | 1,542  |
| CNEL: | 166    | 358    | 771    | 1,661  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: n/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 97,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 9,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 6.36         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -10.88       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -14.83       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.8          | 77.9    | 76.1        | 70.1      | 78.7 | 79.3 |
| Medium Trucks: | 72.9          | 71.4    | 65.0        | 63.5      | 71.9 | 72.2 |
| Heavy Trucks:  | 72.2          | 70.8    | 61.8        | 63.0      | 71.4 | 71.5 |
| Vehicle Noise: | 81.2          | 79.4    | 76.6        | 71.6      | 80.2 | 80.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 475    | 1,024  | 2,205  | 4,751  |
| CNEL: | 512    | 1,103  | 2,377  | 5,122  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Job Number: 8141  
 Road Segment: s/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 86,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 8,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 5.83         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -11.41       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -15.37       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.3          | 77.4    | 75.6        | 69.5      | 78.2 | 78.8 |
| Medium Trucks: | 72.4          | 70.8    | 64.5        | 62.9      | 71.4 | 71.6 |
| Heavy Trucks:  | 71.7          | 70.3    | 61.3        | 62.5      | 70.9 | 71.0 |
| Vehicle Noise: | 80.7          | 78.9    | 76.1        | 71.1      | 79.6 | 80.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 438    | 943    | 2,032  | 4,378  |
| CNEL: | 472    | 1,017  | 2,191  | 4,720  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: e/o SR-241 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 3,900 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 390 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -6.91        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -24.15       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -28.11       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.3          | 57.4    | 55.6        | 49.6      | 58.2 | 58.8 |
| Medium Trucks: | 52.7          | 51.2    | 44.8        | 43.2      | 51.7 | 51.9 |
| Heavy Trucks:  | 52.7          | 51.3    | 42.2        | 43.5      | 51.8 | 52.0 |
| Vehicle Noise: | 60.9          | 59.1    | 56.1        | 51.3      | 59.8 | 60.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 21     | 45     | 97     | 209    |
| CNEL: | 23     | 49     | 105    | 225    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.45        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.64       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.1        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.3        | 47.7      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.6    | 60.6        | 55.7      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 193    | 416    |
| CNEL: | 45     | 96     | 207    | 447    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 34,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.13         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.11       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.07       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.4        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.3          | 61.8    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 62.9          | 61.5    | 52.5        | 53.7      | 62.1 | 62.2 |
| Vehicle Noise: | 71.5          | 69.7    | 66.9        | 61.9      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 232    | 499    | 1,075  |
| CNEL: | 116    | 249    | 537    | 1,158  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.36         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.88       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.83       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.7        | 54.0      | 62.3 | 62.5 |
| Vehicle Noise: | 71.7          | 70.0    | 67.1        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 517    | 1,115  |
| CNEL: | 120    | 259    | 557    | 1,201  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.8        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.7          | 63.1    | 56.8        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.3        | 63.3      | 71.9 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 133    | 287    | 618    | 1,332  |
| CNEL: | 143    | 309    | 666    | 1,434  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |         |                       |        |  |
|--|--|--|--------|---------|-----------------------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |         |                       |        |  |
| Average Daily Traffic (Adt): 51,600 vehicles |  | Autos: 15                              |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |         |                       |        |  |
| Peak Hour Volume: 5,160 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |         |                       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |         |                       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening | Night                 | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |  |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.93         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.31       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 305    | 658    | 1,417  |
| CNEL: | 153    | 329    | 708    | 1,526  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: b/w Roosevelt and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 69,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 6,970 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.23         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.01       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.96       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.1          | 71.2    | 69.5        | 63.4      | 72.0 | 72.6 |
| Medium Trucks: | 66.4          | 64.9    | 58.5        | 57.0      | 65.4 | 65.6 |
| Heavy Trucks:  | 66.0          | 64.6    | 55.6        | 56.8      | 65.2 | 65.3 |
| Vehicle Noise: | 74.6          | 72.8    | 70.0        | 65.0      | 73.6 | 74.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 173    | 373    | 804    | 1,732  |
| CNEL: | 186    | 402    | 866    | 1,865  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: s/o Walnut Av./I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 50,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.42       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.38       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.1        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 65.0          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.6        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 647    | 1,393  |
| CNEL: | 150    | 323    | 696    | 1,500  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: s/o Irvine Center Drive      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.48       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 61.9      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 63.9 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.1        | 55.4      | 63.7 | 63.8 |
| Vehicle Noise: | 73.1          | 71.4    | 68.5        | 63.5      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 297    | 641    | 1,380  |
| CNEL: | 149    | 320    | 690    | 1,487  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 47,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,790 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.60         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.64       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.59       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 291    | 626    | 1,348  |
| CNEL: | 145    | 313    | 674    | 1,452  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Job Number: 8141  
 Road Segment: b/w Quailcreek and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |         |                       |        |  |
|--|--|---|--------|---------|-----------------------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |         |                       |        |  |
| Average Daily Traffic (Adt): 57,800 vehicles |  | Autos: 15                                     |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |         |                       |        |  |
| Peak Hour Volume: 5,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |         |                       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |         |                       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening | Night                 | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |   |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.42         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.82       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.78       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.7        | 62.6      | 71.2 | 71.8 |
| Medium Trucks: | 65.6          | 64.0    | 57.7        | 56.1      | 64.6 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.8        | 56.0      | 64.4 | 64.5 |
| Vehicle Noise: | 73.8          | 72.0    | 69.2        | 64.2      | 72.8 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 153    | 329    | 709    | 1,528  |
| CNEL: | 165    | 355    | 764    | 1,646  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 7,300 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 730 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.19        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.43       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.38       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.0          | 60.1    | 58.3        | 52.3      | 60.9 | 61.5 |
| Medium Trucks: | 55.4          | 53.9    | 47.5        | 46.0      | 54.4 | 54.7 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.6          | 61.8    | 58.9        | 54.0      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 318    |
| CNEL: | 34     | 74     | 159    | 342    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 12,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,200 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.62        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.86       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.81       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.2          | 61.3    | 59.5        | 53.5      | 62.1 | 62.7 |
| Medium Trucks: | 56.8          | 55.2    | 48.9        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 64.9          | 63.1    | 60.1        | 55.3      | 63.9 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 84     | 181    | 389    |
| CNEL: | 42     | 90     | 194    | 418    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Job Number: 8141  
 Road Segment: e/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 16,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.13        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.32       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.7          | 62.8    | 61.0        | 55.0      | 63.6 | 64.2 |
| Medium Trucks: | 58.2          | 56.7    | 50.4        | 48.8      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.7          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 66.4          | 64.6    | 61.6        | 56.8      | 65.3 | 65.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 49     | 105    | 227    | 489    |
| CNEL: | 53     | 113    | 244    | 525    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                             |     |         |       |       |
|--|--|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b>  |     |         |       |       |
| Average Daily Traffic (Adt): 14,900 vehicles | Autos: 15                                      |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                    |     |         |       |       |
| Peak Hour Volume: 1,490 vehicles             | Heavy Trucks (3+ Axles): 15                    |     |         |       |       |
| Vehicle Speed: 50 mph                        | <b>Vehicle Mix</b>                             |     |         |       |       |
| Near/Far Lane Distance: 70 feet              | VehicleType                                    | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                 |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%          |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%           |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>       |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                           |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006      Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>      |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 93.723                                  |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 93.680                          |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 93.723                           |     |         |       |       |
| Right View: 90.0 degrees                     |  |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.68        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.7          | 56.2    | 49.8        | 48.3      | 56.7 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.8          | 64.1    | 61.0        | 56.2      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 224    | 483    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.      Job Number: 8141  
 Road Segment: w/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,780 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.03         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.21       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.16       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.7 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 68.5          | 66.8    | 63.7        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 316    | 681    |
| CNEL: | 73     | 158    | 340    | 732    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.      Job Number: 8141  
 Road Segment: e/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.64         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.55       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 66.0 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.1          | 66.4    | 63.3        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 298    | 642    |
| CNEL: | 69     | 148    | 320    | 689    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: b/w ICD and Discovery      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 680 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.50        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.7          | 59.8    | 58.0        | 52.0      | 60.6 | 61.2 |
| Medium Trucks: | 55.1          | 53.6    | 47.2        | 45.7      | 54.1 | 54.4 |
| Heavy Trucks:  | 55.1          | 53.7    | 44.7        | 45.9      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.5    | 58.6        | 53.7      | 62.2 | 62.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 65     | 141    | 303    |
| CNEL: | 33     | 70     | 151    | 326    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: b/w Waterworks Wy. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 690 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.43        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.67       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.8          | 59.9    | 58.1        | 52.0      | 60.7 | 61.3 |
| Medium Trucks: | 55.1          | 53.6    | 47.3        | 45.7      | 54.2 | 54.4 |
| Heavy Trucks:  | 55.2          | 53.8    | 44.7        | 46.0      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.6    | 58.6        | 53.7      | 62.3 | 62.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 31     | 66     | 142    | 306    |
| CNEL: | 33     | 71     | 153    | 330    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 610 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.97        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.2          | 59.3    | 57.6        | 51.5      | 60.1 | 60.7 |
| Medium Trucks: | 54.6          | 53.1    | 46.7        | 45.2      | 53.7 | 53.9 |
| Heavy Trucks:  | 54.6          | 53.2    | 44.2        | 45.4      | 53.8 | 53.9 |
| Vehicle Noise: | 62.8          | 61.0    | 58.1        | 53.2      | 61.8 | 62.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 61     | 131    | 282    |
| CNEL: | 30     | 65     | 141    | 304    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 960 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.00        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.24       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.2          | 61.3    | 59.5        | 53.5      | 62.1 | 62.7 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.6 | 55.9 |
| Heavy Trucks:  | 56.6          | 55.2    | 46.2        | 47.4      | 55.8 | 55.9 |
| Vehicle Noise: | 64.8          | 63.0    | 60.0        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 177    | 382    |
| CNEL: | 41     | 88     | 191    | 411    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: n/o Quail Hill Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                     |        |                       |       |        |  |
|---|----------------|--|--------|-----------------------|-------|--------|--|
| Highway Data  |                | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |  |
| Average Daily Traffic (Adt):  | 7,700 vehicles | Autos: 15                              |        |                       |       |        |  |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15            |        |                       |       |        |  |
| Peak Hour Volume:   | 770 vehicles   | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |  |
| Vehicle Speed:  | 55 mph         | Vehicle Mix                            |        |                       |       |        |  |
| Near/Far Lane Distance:   | 52 feet        |  |        |                       |       |        |  |
| Site Data   |                | VehicleType                            | Day    | Evening               | Night | Daily  |  |
|   |                | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |  |
|   |                | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |  |
|   |                | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |  |
|   |                | Noise Source Elevations (in feet)      |        |                       |       |        |  |
| Barrier Height: 0.0 feet<br>Barrier Type (0-Wall, 1-Berm): 0.0<br>Centerline Dist. to Barrier: 100.0 feet<br>Centerline Dist. to Observer: 100.0 feet<br>Barrier Distance to Observer: 0.0 feet<br>Observer Height (Above Pad): 5.0 feet<br>Pad Elevation: 0.0 feet<br>Road Elevation: 0.0 feet<br>Road Grade: 0.0%<br>Left View: -90.0 degrees<br>Right View: 90.0 degrees |                | Autos:                                 | 2.000  |                       |       |        |  |
|   |                | Medium Trucks:                         | 4.000  |                       |       |        |  |
|   |                | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |  |
|   |                | Lane Equivalent Distance (in feet)     |        |                       |       |        |  |
|   |                | Autos:                                 | 96.607 |                       |       |        |  |
|   |                | Medium Trucks:                         | 96.566 |                       |       |        |  |
|   |                | Heavy Trucks:                          | 96.608 |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.96        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.20       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.15       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.6        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.6          | 54.1    | 47.7        | 46.2      | 54.7 | 54.9 |
| Heavy Trucks:  | 55.7          | 54.2    | 45.2        | 46.4      | 54.8 | 54.9 |
| Vehicle Noise: | 63.8          | 62.0    | 59.1        | 54.2      | 62.8 | 63.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 71     | 153    | 330    |
| CNEL: | 35     | 76     | 165    | 355    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: s/o Quail Hill Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,100 vehicles |  |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,210 vehicles             |  |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.99        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.6 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 96     | 207    | 445    |
| CNEL: | 48     | 103    | 222    | 479    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Job Number: 8141  
 Road Segment: n/o SR-73 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 34,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.54         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.70       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.65       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.3 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 193    | 415    | 894    |
| CNEL: | 96     | 207    | 446    | 962    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.      Job Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,410 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.41         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.83       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.78       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 288    | 619    |
| CNEL: | 67     | 143    | 309    | 666    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.      Job Number: 8141  
 Road Segment: w/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,060 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.03         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.20       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.16       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 413    | 889    |
| CNEL: | 96     | 206    | 444    | 957    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Rd.      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 5,800 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 580 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 35 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 20 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 99.544 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 99.504 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 99.544 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.23        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.46       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.42       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.3          | 53.4    | 51.6        | 45.6      | 54.2 | 54.8 |
| Medium Trucks: | 49.5          | 48.0    | 41.6        | 40.1      | 48.5 | 48.8 |
| Heavy Trucks:  | 51.4          | 49.9    | 40.9        | 42.2      | 50.5 | 50.6 |
| Vehicle Noise: | 57.5          | 55.8    | 52.4        | 48.0      | 56.5 | 56.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 27     | 58     | 126    |
| CNEL: | 13     | 29     | 62     | 134    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.14         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.09       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.05       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.6          | 64.9    | 61.8        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 237    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o SR-241 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,760 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.00         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.24       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.19       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.1        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.3        | 51.6      | 59.9 | 60.1 |
| Vehicle Noise: | 68.5          | 66.7    | 63.7        | 58.9      | 67.5 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 146    | 315    | 678    |
| CNEL: | 73     | 157    | 338    | 729    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o Rancho Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 68.0    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 815    |
| CNEL: | 88     | 189    | 407    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 36,100 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,610 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.17         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.07       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.03       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 811    |
| CNEL: | 87     | 188    | 404    | 871    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 41,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.32         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.92       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.88       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 233    | 502    | 1,082  |
| CNEL: | 116    | 251    | 540    | 1,164  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 39,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,960 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.08       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.04       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.1      | 68.7 | 69.3 |
| Medium Trucks: | 63.2          | 61.7    | 55.3        | 53.8      | 62.2 | 62.5 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.4          | 69.6    | 66.7        | 61.8      | 70.4 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 227    | 490    | 1,056  |
| CNEL: | 114    | 245    | 527    | 1,136  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 40,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,040 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.24         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.00       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.95       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.2        | 60.2      | 68.8 | 69.4 |
| Medium Trucks: | 63.3          | 61.8    | 55.4        | 53.9      | 62.3 | 62.6 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.5          | 69.7    | 66.8        | 61.9      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 107    | 231    | 497    | 1,070  |
| CNEL: | 115    | 248    | 534    | 1,151  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.13         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.06       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 419    | 903    |
| CNEL: | 97     | 209    | 451    | 971    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 64.0          | 62.5    | 56.1        | 54.6      | 63.0 | 63.3 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 256    | 553    | 1,190  |
| CNEL: | 128    | 276    | 594    | 1,281  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 76,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 7,650 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 6.01         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.22       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.18       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.7          | 70.8    | 69.0        | 63.0      | 71.6 | 72.2 |
| Medium Trucks: | 66.1          | 64.6    | 58.2        | 56.6      | 65.1 | 65.3 |
| Heavy Trucks:  | 66.1          | 64.7    | 55.6        | 56.9      | 65.2 | 65.4 |
| Vehicle Noise: | 74.3          | 72.5    | 69.5        | 64.7      | 73.2 | 73.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 164    | 353    | 760    | 1,638  |
| CNEL: | 176    | 380    | 818    | 1,762  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o Avenida Carlota/I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 22,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.40         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 178    | 383    | 824    |
| CNEL: | 89     | 191    | 412    | 888    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,270 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.16        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -19.40       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -23.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.7          | 63.8    | 62.1        | 56.0      | 64.6 | 65.3 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.3 |
| Heavy Trucks:  | 58.7          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 67.2          | 65.5    | 62.6        | 57.6      | 66.2 | 66.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 56     | 120    | 258    | 557    |
| CNEL: | 60     | 129    | 278    | 599    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: b/w Scientific Way and Tesla      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.3          | 59.8    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 371    | 800    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.57         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.67       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.6    | 64.8        | 58.8      | 67.4 | 68.0 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.4          | 60.0    | 50.9        | 52.2      | 60.5 | 60.7 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 182    | 393    | 846    |
| CNEL: | 91     | 196    | 423    | 911    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Job Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 22,500 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 2,250 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.70         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.54       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.49       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.2      | 65.8 | 66.4 |
| Medium Trucks: | 60.3          | 58.8    | 52.4        | 50.9      | 59.3 | 59.6 |
| Heavy Trucks:  | 60.3          | 58.9    | 49.9        | 51.1      | 59.5 | 59.6 |
| Vehicle Noise: | 68.5          | 66.7    | 63.7        | 58.9      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 145    | 313    | 674    |
| CNEL: | 72     | 156    | 336    | 725    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,260 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.13         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.11       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.5          | 58.0    | 51.6        | 50.1      | 58.5 | 58.8 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 67.6          | 65.9    | 62.8        | 58.1      | 66.6 | 67.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 59     | 128    | 275    | 593    |
| CNEL: | 64     | 137    | 296    | 638    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |  | NOISE MODEL INPUTS                            |     |         |       |                       |        |
|--|--|--|---|-----|---------|-------|-----------------------|--------|
| <b>Highway Data</b>  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |                       |        |
| Average Daily Traffic (Adt): 28,100 vehicles   |  |  | Autos: 15                                     |     |         |       |                       |        |
| Peak Hour Percentage: 10%  |  |  | Medium Trucks (2 Axles): 15                   |     |         |       |                       |        |
| Peak Hour Volume: 2,810 vehicles   |  |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |                       |        |
| Vehicle Speed: 55 mph  |  |  | <b>Vehicle Mix</b>                            |     |         |       |                       |        |
| Near/Far Lane Distance: 88 feet  |  |  |   |     |         |       |                       |        |
| <b>Site Data</b>   |  |  | VehicleType                                   | Day | Evening | Night | Daily                 |        |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |  | Autos:  |     | 77.5%   | 12.9% | 9.6%                  | 97.42% |
|  |  |  | Medium Trucks:                                |     | 84.8%   | 4.9%  | 10.3%                 | 1.84%  |
|  |  |  | Heavy Trucks:                                 |     | 86.5%   | 2.7%  | 10.8%                 | 0.74%  |
|  |  |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |                       |        |
|  |  |  | Autos:  |     | 2.000   |       |                       |        |
|  |  |  | Medium Trucks:                                |     | 4.000   |       |                       |        |
|  |  |  | Heavy Trucks:                                 |     | 8.006   |       | Grade Adjustment: 0.0 |        |
|  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |                       |        |
|  |  |  | Autos:  |     | 89.850  |       |                       |        |
|  |  |  | Medium Trucks:                                |     | 89.805  |       |                       |        |
|  |  |  | Heavy Trucks:                                 |     | 89.850  |       |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 840    |
| CNEL: | 90     | 195    | 419    | 904    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: e/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 41,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,120 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.33         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.91       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.87       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 234    | 503    | 1,084  |
| CNEL: | 117    | 251    | 541    | 1,166  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: w/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.00       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 378    | 814    |
| CNEL: | 87     | 188    | 406    | 875    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Job Number: 8141  
 Road Segment: s/o Rockfield Bl./Fordview St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.10       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.0      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 96     | 208    | 448    | 965    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |  |
|--|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: Los Alisos Bl.<br>Road Segment: b/w Avenida Carlota and Paseo de Valencia | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|--|--|

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 25,100 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,510 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.06       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.02       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.3          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 362    | 779    |
| CNEL: | 84     | 181    | 389    | 838    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: w/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.02         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.22       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.18       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.0    | 64.1        | 59.2      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 152    | 328    | 707    |
| CNEL: | 76     | 164    | 353    | 761    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: e/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.46         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.78       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.74       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.2        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.9      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.5    | 64.5        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 757    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: w/o D St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.1 |
| Medium Trucks: | 60.9          | 59.4    | 53.1        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.4    | 64.4        | 59.5      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 346    | 746    |
| CNEL: | 80     | 173    | 372    | 802    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: e/o D St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.91         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.33       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.29       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 323    | 695    |
| CNEL: | 75     | 161    | 347    | 748    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Job Number: 8141  
 Road Segment: w/o Great Park Blvd East      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 23,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.96         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.23       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.6          | 59.1    | 50.1        | 51.4      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 67.0    | 64.0        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 701    |
| CNEL: | 75     | 163    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Job Number: 8141  
 Road Segment: w/o B St      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,710 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.51         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 164    | 354    | 763    |
| CNEL: | 82     | 177    | 381    | 820    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Job Number: 8141  
 Road Segment: e/o B St      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: n/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,140 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.48         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 56.9      | 65.6 | 66.2 |
| Medium Trucks: | 60.1          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.4 |
| Vehicle Noise: | 68.2          | 66.5    | 63.5        | 58.7      | 67.2 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 140    | 302    | 652    |
| CNEL: | 70     | 151    | 325    | 701    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 13,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.46        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.65       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.7          | 62.8    | 61.1        | 55.0      | 63.6 | 64.2 |
| Medium Trucks: | 58.1          | 56.6    | 50.2        | 48.7      | 57.2 | 57.4 |
| Heavy Trucks:  | 58.2          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 66.3          | 64.5    | 61.6        | 56.7      | 65.3 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 104    | 225    | 484    |
| CNEL: | 52     | 112    | 242    | 521    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.83         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.36       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.6 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 319    | 688    |
| CNEL: | 74     | 159    | 343    | 740    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Job Number: 8141  
 Road Segment: s/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.96         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.23       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.6          | 59.1    | 50.1        | 51.4      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 67.0    | 64.0        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 701    |
| CNEL: | 75     | 163    | 350    | 754    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Meridian      Job Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>   |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):  | 1,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:   | 100 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:  | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:   | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>  |                | VehicleType                                   | Day | Evening | Night | Daily |
| <div><b>Barrier Height:</b> 0.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 100.0 feet</div> <div>Centerline Dist. to Observer: 100.0 feet</div> <div>Barrier Distance to Observer: 0.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 0.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div> <div>Left View: -90.0 degrees</div> <div>Right View: 90.0 degrees</div> <td colspan="5">Autos: 77.5% 12.9% 9.6% 97.42%</td> |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|   |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|   |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|   |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|   |                | Autos: 2.000                                  |     |         |       |       |
|   |                | Medium Trucks: 4.000                          |     |         |       |       |
|   |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|   |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|   |                | Autos: 96.607                                 |     |         |       |       |
|   |                | Medium Trucks: 96.566                         |     |         |       |       |
|   |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -12.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -30.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -34.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 53.4          | 51.5    | 49.7        | 43.6      | 52.3 | 52.9 |
| Medium Trucks: | 46.8          | 45.2    | 38.9        | 37.3      | 45.8 | 46.0 |
| Heavy Trucks:  | 46.8          | 45.4    | 36.3        | 37.6      | 45.9 | 46.1 |
| Vehicle Noise: | 54.9          | 53.2    | 50.2        | 45.4      | 53.9 | 54.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 18     | 39     | 85     |
| CNEL: | 9      | 20     | 42     | 91     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Modjeska      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | 0.60         | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -16.64       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -20.59       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.1          | 57.2    | 55.4        | 49.4      | 58.0 | 58.6 |
| Medium Trucks: | 53.3          | 51.8    | 45.5        | 43.9      | 52.4 | 52.6 |
| Heavy Trucks:  | 55.2          | 53.8    | 44.7        | 46.0      | 54.3 | 54.5 |
| Vehicle Noise: | 61.3          | 59.6    | 56.2        | 51.8      | 60.3 | 60.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 49     | 105    | 226    |
| CNEL: | 24     | 52     | 112    | 242    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: e/o (s/o) Lake Forest      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 31,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,150 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.16         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.08       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.03       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.2        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.4 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 195    | 421    | 906    |
| CNEL: | 98     | 210    | 453    | 975    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: e/o (s/o) Ridge Route      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.07         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.17       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.13       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.2        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.3 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 224    | 483    | 1,042  |
| CNEL: | 112    | 241    | 520    | 1,121  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: w/o (n/o) El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 43,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.2        | 54.5      | 62.8 | 63.0 |
| Vehicle Noise: | 71.8          | 70.1    | 67.1        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 525    | 1,131  |
| CNEL: | 122    | 262    | 565    | 1,217  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: e/o (s/o) El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 44,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.69         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.55       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.50       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,146  |
| CNEL: | 123    | 266    | 572    | 1,233  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: b/w Glenwood/Indian Creek and Laguna Hills      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 41,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,140 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.35         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.89       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.85       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 53.0        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.9        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 234    | 505    | 1,088  |
| CNEL: | 117    | 252    | 543    | 1,170  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: s/o Laguna Hills Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 58.9      | 67.6 | 68.2 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 410    | 883    |
| CNEL: | 95     | 205    | 441    | 950    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,610 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.34         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.89       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.85       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 371    | 800    |
| CNEL: | 86     | 185    | 399    | 860    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.62        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.86       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.82       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.6          | 63.7    | 61.9        | 55.8      | 64.5 | 65.1 |
| Medium Trucks: | 59.0          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.0          | 57.6    | 48.5        | 49.8      | 58.1 | 58.3 |
| Vehicle Noise: | 67.1          | 65.4    | 62.4        | 57.6      | 66.1 | 66.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 119    | 255    | 550    |
| CNEL: | 59     | 127    | 275    | 592    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.54         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.70       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.66       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.7        | 55.6      | 64.2 | 64.9 |
| Medium Trucks: | 58.9          | 57.4    | 51.0        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.0          | 65.3    | 62.2        | 57.5      | 66.0 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 117    | 251    | 542    |
| CNEL: | 58     | 125    | 270    | 582    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.87         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.32       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.4          | 66.6    | 63.6        | 58.8      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 143    | 309    | 665    |
| CNEL: | 71     | 154    | 332    | 714    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.87         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.32       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.4          | 66.6    | 63.6        | 58.8      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 143    | 309    | 665    |
| CNEL: | 71     | 154    | 332    | 714    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,880 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.01       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 68.7          | 66.9    | 63.9        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 324    | 698    |
| CNEL: | 75     | 161    | 348    | 749    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: s/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.43         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.81       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.76       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.8        | 51.0      | 59.4 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 134    | 288    | 621    |
| CNEL: | 67     | 144    | 310    | 667    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Job Number: 8141  
 Road Segment: e/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 19,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.58         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.61       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.9          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 57.9    | 48.9        | 50.2      | 58.5 | 58.6 |
| Vehicle Noise: | 67.1          | 65.3    | 62.3        | 57.5      | 66.0 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 117    | 253    | 545    |
| CNEL: | 59     | 126    | 272    | 586    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Oak Cyn./Laguna Cyn. Rd.      Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.80        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.04       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.99       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.1        | 46.0      | 54.6 | 55.2 |
| Medium Trucks: | 49.9          | 48.4    | 42.1        | 40.5      | 49.0 | 49.2 |
| Heavy Trucks:  | 51.8          | 50.4    | 41.3        | 42.6      | 50.9 | 51.1 |
| Vehicle Noise: | 57.9          | 56.2    | 52.8        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Orchard Hills/PA 1 Loop      Job Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 690 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.47        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -19.71       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.67       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.0          | 54.1    | 52.4        | 46.3      | 54.9 | 55.6 |
| Medium Trucks: | 50.3          | 48.7    | 42.4        | 40.8      | 49.3 | 49.5 |
| Heavy Trucks:  | 52.1          | 50.7    | 41.7        | 42.9      | 51.3 | 51.4 |
| Vehicle Noise: | 58.3          | 56.5    | 53.1        | 48.7      | 57.3 | 57.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 14     | 30     | 66     | 141    |
| CNEL: | 15     | 33     | 70     | 151    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica      Job Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.53        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.77       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.72       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.0        | 53.9      | 62.6 | 63.2 |
| Medium Trucks: | 57.0          | 55.5    | 49.2        | 47.6      | 56.1 | 56.3 |
| Heavy Trucks:  | 57.1          | 55.7    | 46.6        | 47.9      | 56.2 | 56.4 |
| Vehicle Noise: | 65.2          | 63.5    | 60.5        | 55.6      | 64.2 | 64.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 88     | 191    | 410    |
| CNEL: | 44     | 95     | 205    | 442    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica      Job Number: 8141  
 Road Segment: w/o (n/o) Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 7,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 720 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.25        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.49       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.44       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.3          | 53.8    | 47.5        | 45.9      | 54.4 | 54.6 |
| Heavy Trucks:  | 55.4          | 53.9    | 44.9        | 46.2      | 54.5 | 54.6 |
| Vehicle Noise: | 63.5          | 61.8    | 58.8        | 53.9      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 68     | 146    | 315    |
| CNEL: | 34     | 73     | 157    | 339    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.00       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 378    | 814    |
| CNEL: | 87     | 188    | 406    | 875    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Job Number: 8141  
 Road Segment: w/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 30,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.08         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.16       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.12       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 193    | 415    | 895    |
| CNEL: | 96     | 207    | 447    | 963    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Job Number: 8141  
 Road Segment: e/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 46,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.89         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.35       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.9        | 60.8      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 64.0          | 62.5    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.1          | 70.4    | 67.4        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,182  |
| CNEL: | 127    | 274    | 590    | 1,272  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Job Number: 8141  
 Road Segment: w/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.79         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.45       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.41       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.8        | 59.7      | 68.4 | 69.0 |
| Medium Trucks: | 62.8          | 61.3    | 55.0        | 53.4      | 61.9 | 62.1 |
| Heavy Trucks:  | 62.9          | 61.4    | 52.4        | 53.7      | 62.0 | 62.1 |
| Vehicle Noise: | 71.0          | 69.3    | 66.3        | 61.4      | 70.0 | 70.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 100    | 215    | 463    | 998    |
| CNEL: | 107    | 231    | 498    | 1,074  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Job Number: 8141  
 Road Segment: e/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.95        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.19       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.14       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.4          | 55.9    | 49.6        | 48.0      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.8          | 56.4    | 47.4        | 48.6      | 57.0 | 57.1 |
| Vehicle Noise: | 65.6          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.42        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.62       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.4          | 62.5    | 60.7        | 54.7      | 63.3 | 63.9 |
| Medium Trucks: | 57.9          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.4          | 56.9    | 47.9        | 49.2      | 57.5 | 57.6 |
| Vehicle Noise: | 66.1          | 64.3    | 61.3        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 467    |
| CNEL: | 50     | 108    | 233    | 502    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o SR-261 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.02         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.22       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.18       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.3        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.2          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.4        | 52.6      | 61.0 | 61.1 |
| Vehicle Noise: | 70.4          | 68.6    | 65.8        | 60.8      | 69.4 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 195    | 421    | 906    |
| CNEL: | 98     | 210    | 453    | 976    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o SR-261 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.3          | 59.8    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 371    | 800    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,320 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.45         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.78       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.74       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.7        | 58.6      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.5 |
| Vehicle Noise: | 69.8          | 68.1    | 65.2        | 60.2      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 179    | 386    | 832    |
| CNEL: | 90     | 193    | 416    | 896    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.1      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.6    | 65.7        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 97     | 208    | 449    | 966    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,770 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.60         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.64       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.59       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.1        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 167    | 359    | 774    |
| CNEL: | 83     | 179    | 386    | 832    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |        |                       | NOISE MODEL INPUTS                            |  |       |         |       |        |
|--|--|--------|-----------------------|---|--|-------|---------|-------|--------|
| <b>Highway Data</b>  |  |        |                       | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |       |         |       |        |
| Average Daily Traffic (Adt): 23,300 vehicles   |  |        |                       | Autos: 15                                     |  |       |         |       |        |
| Peak Hour Percentage: 10%  |  |        |                       | Medium Trucks (2 Axles): 15                   |  |       |         |       |        |
| Peak Hour Volume: 2,330 vehicles   |  |        |                       | Heavy Trucks (3+ Axles): 15                   |  |       |         |       |        |
| Vehicle Speed: 55 mph  |  |        |                       | <b>Vehicle Mix</b>                            |  |       |         |       |        |
| Near/Far Lane Distance: 52 feet  |  |        |                       |   |  |       |         |       |        |
| <b>Site Data</b>   |  |        |                       | VehicleType                                   |  | Day   | Evening | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |        |                       | Autos:  |  | 77.5% | 12.9%   | 9.6%  | 97.42% |
|  |  |        |                       | Medium Trucks:                                |  | 84.8% | 4.9%    | 10.3% | 1.84%  |
|  |  |        |                       | Heavy Trucks:                                 |  | 86.5% | 2.7%    | 10.8% | 0.74%  |
|  |  |        |                       | <b>Noise Source Elevations (in feet)</b>      |  |       |         |       |        |
|  |  |        |                       | Autos:  |  | 2.000 |         |       |        |
| Medium Trucks:   |  | 4.000  |                       |   |  |       |         |       |        |
| Heavy Trucks:  |  | 8.006  | Grade Adjustment: 0.0 |   |  |       |         |       |        |
| <b>Lane Equivalent Distance (in feet)</b>  |  |        |                       |   |  |       |         |       |        |
| Autos:   |  | 96.607 |                       |   |  |       |         |       |        |
| Medium Trucks:   |  | 96.566 |                       |   |  |       |         |       |        |
| Heavy Trucks:  |  | 96.608 |                       |   |  |       |         |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.85         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.39       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.34       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.5          | 59.0    | 50.0        | 51.3      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.9    | 63.9        | 59.0      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 149    | 320    | 690    |
| CNEL: | 74     | 160    | 344    | 742    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Ridge Valley      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 24,600 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 2,460 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 52 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 96.607 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 96.566 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 96.608 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.09         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.15       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.11       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.1        | 59.3      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 332    | 715    |
| CNEL: | 77     | 166    | 357    | 769    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Ridge Valley      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: b/w Silverado and Portola Springs      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.52         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.3 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 165    | 355    | 764    |
| CNEL: | 82     | 177    | 382    | 822    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Portola Springs      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.89         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.35       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.31       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.0        | 51.3      | 59.6 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 63.9        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 149    | 322    | 693    |
| CNEL: | 75     | 161    | 346    | 746    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 4,600 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 460 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 93.723 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -5.78        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -23.02       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -26.98       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.0          | 57.1    | 55.4        | 49.3      | 57.9 | 58.5 |
| Medium Trucks: | 52.6          | 51.1    | 44.7        | 43.2      | 51.6 | 51.9 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.5        | 43.8      | 52.2 | 52.3 |
| Vehicle Noise: | 60.7          | 59.0    | 55.9        | 51.1      | 59.7 | 60.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 21     | 44     | 95     | 205    |
| CNEL: | 22     | 48     | 102    | 221    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 714    |
| CNEL: | 77     | 165    | 356    | 768    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 31,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,170 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.2        | 59.1      | 67.7 | 68.4 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 62.3          | 60.8    | 51.8        | 53.1      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.7    | 65.7        | 60.8      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 196    | 423    | 910    |
| CNEL: | 98     | 211    | 455    | 979    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: w/o Glenn Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.13         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.06       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.2 | 63.5 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.8        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,227  |
| CNEL: | 132    | 284    | 613    | 1,320  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: e/o Glenn Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 34,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,450 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.56         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.68       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.64       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.5        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.7        | 53.2      | 61.6 | 61.9 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.8 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 208    | 447    | 963    |
| CNEL: | 104    | 223    | 481    | 1,036  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy. East      Job Number: 8141  
 Road Segment: s/o SR-241 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 34,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,480 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.59         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.65       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.60       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.5      | 68.2 | 68.8 |
| Medium Trucks: | 62.6          | 61.1    | 54.8        | 53.2      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.1    | 66.1        | 61.2      | 69.8 | 70.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 209    | 450    | 969    |
| CNEL: | 104    | 225    | 484    | 1,042  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Job Number: 8141  
 Road Segment: s/o Rancho Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 59,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,980 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.29       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.25       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 645    | 1,390  |
| CNEL: | 150    | 322    | 694    | 1,495  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy./S. Margarita Pkwy.      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.07       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.03       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.2        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.8        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.4 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 266    | 573    | 1,233  |
| CNEL: | 133    | 286    | 616    | 1,327  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Springs      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 6,400 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.76        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.00       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 54.8          | 53.3    | 46.9        | 45.4      | 53.9 | 54.1 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.4        | 45.6      | 54.0 | 54.1 |
| Vehicle Noise: | 63.0          | 61.2    | 58.3        | 53.4      | 62.0 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 135    | 291    |
| CNEL: | 31     | 68     | 145    | 313    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Quail Hill Pkwy.      Job Number: 8141  
 Road Segment: e/o Shady Canyon Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.10         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 285    | 614    |
| CNEL: | 66     | 142    | 307    | 661    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy. S      Job Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.32        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.56       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.52       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.5          | 60.6    | 58.8        | 52.8      | 61.4 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.2        | 46.6      | 55.1 | 55.3 |
| Heavy Trucks:  | 56.5          | 55.0    | 46.0        | 47.3      | 55.6 | 55.7 |
| Vehicle Noise: | 64.2          | 62.4    | 59.4        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 162    | 349    |
| CNEL: | 38     | 81     | 174    | 375    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 29,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,960 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.30         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.93       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.89       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.7 | 60.0 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 68.8          | 67.1    | 64.0        | 59.2      | 67.8 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 710    |
| CNEL: | 76     | 164    | 354    | 763    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.      Job Number: 8141  
 Road Segment: e/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Job Number: 8141  
 Road Segment: e/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA        |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|---------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>             |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):    | 8,900 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:           | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:               | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                  | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:         | 52 feet        |   |        |                       |       |        |
| <b>Site Data</b>                |                | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Type (0-Wall, 1-Berm):  | 0.0            | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Centerline Dist. to Barrier:    | 100.0 feet     | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Observer:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Barrier Distance to Observer:   | 0.0 feet       | Autos:  | 2.000  | Grade Adjustment: 0.0 |       |        |
| Observer Height (Above Pad):    | 5.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Pad Elevation:                  | 0.0 feet       | Heavy Trucks:                                 | 8.006  |                       |       |        |
| Road Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Grade:                     | 0.0%           | Autos:  | 96.607 |                       |       |        |
| Left View:                      | -90.0 degrees  | Medium Trucks:                                | 96.566 |                       |       |        |
| Right View:                     | 90.0 degrees   | Heavy Trucks:                                 | 96.608 |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.2          | 54.7    | 48.4        | 46.8      | 55.3 | 55.5 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.8        | 47.1      | 55.4 | 55.6 |
| Vehicle Noise: | 64.4          | 62.7    | 59.7        | 54.8      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 78     | 168    | 363    |
| CNEL: | 39     | 84     | 181    | 391    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Job Number: 8141  
 Road Segment: w/o (n/o) Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 11,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,180 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.10        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.34       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.30       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.4        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.5          | 56.0    | 49.6        | 48.1      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.5          | 56.1    | 47.0        | 48.3      | 56.7 | 56.8 |
| Vehicle Noise: | 65.7          | 63.9    | 60.9        | 56.1      | 64.6 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 94     | 203    | 438    |
| CNEL: | 47     | 102    | 219    | 471    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Job Number: 8141  
 Road Segment: n/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,210 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.99        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.6 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 96     | 207    | 445    |
| CNEL: | 48     | 103    | 222    | 479    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 900 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.87        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.10       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 54.0    | 47.6        | 46.1      | 54.5 | 54.8 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.5        | 46.7      | 55.1 | 55.2 |
| Vehicle Noise: | 63.6          | 61.9    | 58.8        | 54.1      | 62.6 | 63.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 149    | 321    |
| CNEL: | 35     | 74     | 160    | 345    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                            |        |                       |       |        |  |
|--|----------------|---|--------|-----------------------|-------|--------|--|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |  |
| Average Daily Traffic (Adt):   | 7,100 vehicles | Autos: 15                                     |        |                       |       |        |  |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |  |
| Peak Hour Volume:  | 710 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |  |
| Vehicle Speed:   | 50 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |  |
| Near/Far Lane Distance:  | 70 feet        |   |        |                       |       |        |  |
| <b>Site Data</b>   |                | VehicleType                                   | Day    | Evening               | Night | Daily  |  |
| <b>Barrier Height: 0.0 feet</b><br><i>Barrier Type (0-Wall, 1-Berm): 0.0</i><br><i>Centerline Dist. to Barrier: 100.0 feet</i><br><i>Centerline Dist. to Observer: 100.0 feet</i><br><i>Barrier Distance to Observer: 0.0 feet</i><br><i>Observer Height (Above Pad): 5.0 feet</i><br><i>Pad Elevation: 0.0 feet</i><br><i>Road Elevation: 0.0 feet</i><br><i>Road Grade: 0.0%</i><br><i>Left View: -90.0 degrees</i><br><i>Right View: 90.0 degrees</i> |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |  |
|  |                | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |  |
|  |                | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |  |
|  |                | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |  |
|  |                | Autos:  | 2.000  |                       |       |        |  |
|  |                | Medium Trucks:                                | 4.000  |                       |       |        |  |
|  |                | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |  |
|  |                | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |  |
|  |                | Autos:  | 93.723 |                       |       |        |  |
|  |                | Medium Trucks:                                | 93.680 |                       |       |        |  |
| Heavy Trucks:  | 93.723         |   |        |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.90        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.13       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.09       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.9          | 59.0    | 57.2        | 51.2      | 59.8 | 60.4 |
| Medium Trucks: | 54.5          | 53.0    | 46.6        | 45.1      | 53.5 | 53.8 |
| Heavy Trucks:  | 54.9          | 53.5    | 44.4        | 45.7      | 54.0 | 54.2 |
| Vehicle Noise: | 62.6          | 60.9    | 57.8        | 53.0      | 61.6 | 62.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 27     | 59     | 127    | 274    |
| CNEL: | 29     | 63     | 137    | 295    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.37        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.56       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.8        | 52.7      | 61.3 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.6      | 55.0 | 55.3 |
| Heavy Trucks:  | 56.4          | 55.0    | 46.0        | 47.2      | 55.6 | 55.7 |
| Vehicle Noise: | 64.1          | 62.4    | 59.3        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 161    | 347    |
| CNEL: | 37     | 80     | 173    | 373    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 810 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 93.723                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 93.680                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.32        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.56       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.52       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.5          | 59.6    | 57.8        | 51.8      | 60.4 | 61.0 |
| Medium Trucks: | 55.0          | 53.5    | 47.2        | 45.6      | 54.1 | 54.3 |
| Heavy Trucks:  | 55.5          | 54.0    | 45.0        | 46.3      | 54.6 | 54.7 |
| Vehicle Noise: | 63.2          | 61.4    | 58.4        | 53.6      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 65     | 139    | 299    |
| CNEL: | 32     | 69     | 149    | 322    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o Rockfield B.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.14         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.09       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.05       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.6          | 64.9    | 61.8        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 237    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o (w/o) Avenida Carlota      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 14,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,490 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.68        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.7          | 56.2    | 49.8        | 48.3      | 56.7 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.8          | 64.1    | 61.0        | 56.2      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 224    | 483    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: s/o (w/o) Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.99        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.23       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.19       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.8          | 60.9    | 59.1        | 53.1      | 61.7 | 62.3 |
| Medium Trucks: | 56.4          | 54.9    | 48.5        | 47.0      | 55.4 | 55.7 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.3        | 47.6      | 55.9 | 56.1 |
| Vehicle Noise: | 64.5          | 62.8    | 59.7        | 54.9      | 63.5 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 37     | 79     | 170    | 367    |
| CNEL: | 39     | 85     | 183    | 395    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Job Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 9,500 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 950 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 93.723 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.63        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.87       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.83       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.7          | 54.2    | 47.9        | 46.3      | 54.8 | 55.0 |
| Heavy Trucks:  | 56.2          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 63.9          | 62.1    | 59.1        | 54.3      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 72     | 155    | 333    |
| CNEL: | 36     | 77     | 166    | 358    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Valley      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 980 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.91        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.15       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.10       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.3          | 61.4    | 59.6        | 53.6      | 62.2 | 62.8 |
| Medium Trucks: | 56.7          | 55.2    | 48.8        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 56.7          | 55.3    | 46.2        | 47.5      | 55.8 | 56.0 |
| Vehicle Noise: | 64.9          | 63.1    | 60.1        | 55.3      | 63.8 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 83     | 180    | 387    |
| CNEL: | 42     | 90     | 193    | 416    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: e/o Marine Wy      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |               | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|---------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |               | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 100 vehicles  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%           | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 10 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet       | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |               | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet      | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet    | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet    | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet      | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet      | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet      | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%          | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -22.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -40.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -44.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 43.4          | 41.5    | 39.7        | 33.6      | 42.3 | 42.9 |
| Medium Trucks: | 36.8          | 35.2    | 28.9        | 27.3      | 35.8 | 36.0 |
| Heavy Trucks:  | 36.8          | 35.4    | 26.3        | 27.6      | 35.9 | 36.1 |
| Vehicle Noise: | 44.9          | 43.2    | 40.2        | 35.4      | 43.9 | 44.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 2      | 4      | 8      | 18     |
| CNEL: | 2      | 4      | 9      | 20     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: e/o Sterling      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |              | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph       | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet      | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |              | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -22.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -40.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -44.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 43.4          | 41.5    | 39.7        | 33.6      | 42.3 | 42.9 |
| Medium Trucks: | 36.8          | 35.2    | 28.9        | 27.3      | 35.8 | 36.0 |
| Heavy Trucks:  | 36.8          | 35.4    | 26.3        | 27.6      | 35.9 | 36.1 |
| Vehicle Noise: | 44.9          | 43.2    | 40.2        | 35.4      | 43.9 | 44.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 2      | 4      | 8      | 18     |
| CNEL: | 2      | 4      | 9      | 20     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                     |        |                       |       |        |  |
|---|----------------|--|--------|-----------------------|-------|--------|--|
| Highway Data  |                | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |  |
| Average Daily Traffic (Adt):  | 7,600 vehicles | Autos: 15                              |        |                       |       |        |  |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15            |        |                       |       |        |  |
| Peak Hour Volume:   | 760 vehicles   | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |  |
| Vehicle Speed:  | 55 mph         | Vehicle Mix                            |        |                       |       |        |  |
| Near/Far Lane Distance:   | 52 feet        |  |        |                       |       |        |  |
| Site Data   |                | VehicleType                            | Day    | Evening               | Night | Daily  |  |
|   |                | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |  |
|   |                | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |  |
|   |                | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |  |
|   |                | Noise Source Elevations (in feet)      |        |                       |       |        |  |
| Barrier Height: 0.0 feet<br>Barrier Type (0-Wall, 1-Berm): 0.0<br>Centerline Dist. to Barrier: 100.0 feet<br>Centerline Dist. to Observer: 100.0 feet<br>Barrier Distance to Observer: 0.0 feet<br>Observer Height (Above Pad): 5.0 feet<br>Pad Elevation: 0.0 feet<br>Road Elevation: 0.0 feet<br>Road Grade: 0.0%<br>Left View: -90.0 degrees<br>Right View: 90.0 degrees |                | Autos:                                 | 2.000  |                       |       |        |  |
|   |                | Medium Trucks:                         | 4.000  |                       |       |        |  |
|   |                | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |  |
|   |                | Lane Equivalent Distance (in feet)     |        |                       |       |        |  |
|   |                | Autos:                                 | 96.607 |                       |       |        |  |
|   |                | Medium Trucks:                         | 96.566 |                       |       |        |  |
|   |                | Heavy Trucks:                          | 96.608 |                       |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.01        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.21       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.6          | 54.1    | 47.7        | 46.1      | 54.6 | 54.8 |
| Heavy Trucks:  | 55.6          | 54.2    | 45.1        | 46.4      | 54.7 | 54.9 |
| Vehicle Noise: | 63.8          | 62.0    | 59.0        | 54.2      | 62.7 | 63.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 70     | 152    | 327    |
| CNEL: | 35     | 76     | 163    | 352    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 15,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.89        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.6        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.7 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 245    | 528    |
| CNEL: | 57     | 122    | 264    | 568    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,400 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.39         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.84       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.80       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 287    | 618    |
| CNEL: | 66     | 143    | 308    | 664    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.41         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.83       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.78       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 288    | 619    |
| CNEL: | 67     | 143    | 309    | 666    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |         |                       |        |  |
|--|--|---|--------|---------|-----------------------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |         |                       |        |  |
| Average Daily Traffic (Adt): 10,200 vehicles |  | Autos: 15                                     |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |         |                       |        |  |
| Peak Hour Volume: 1,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |         |                       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |         |                       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening | Night                 | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |   |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.74        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.97       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.93       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.8        | 53.7      | 62.4 | 63.0 |
| Medium Trucks: | 56.8          | 55.3    | 49.0        | 47.4      | 55.9 | 56.1 |
| Heavy Trucks:  | 56.9          | 55.5    | 46.4        | 47.7      | 56.0 | 56.1 |
| Vehicle Noise: | 65.0          | 63.3    | 60.3        | 55.4      | 64.0 | 64.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 86     | 185    | 398    |
| CNEL: | 43     | 92     | 199    | 428    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.1 |
| Medium Trucks: | 59.9          | 58.4    | 52.1        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 60.0          | 58.5    | 49.5        | 50.8      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.4    | 63.4        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 639    |
| CNEL: | 69     | 148    | 319    | 688    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Job Number: 8141  
 Road Segment: w/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,600 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 860 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.48        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 53.0      | 61.6 | 62.2 |
| Medium Trucks: | 56.1          | 54.6    | 48.2        | 46.7      | 55.1 | 55.4 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 64.3          | 62.5    | 59.6        | 54.7      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 165    | 355    |
| CNEL: | 38     | 82     | 177    | 382    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 26,700 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,670 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.44         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.80       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.75       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.5        | 59.6      | 68.2 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 350    | 755    |
| CNEL: | 81     | 175    | 377    | 812    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.37       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.5      | 62.0 | 62.2 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.4    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 221    | 476    | 1,026  |
| CNEL: | 111    | 238    | 513    | 1,105  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.26         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.94       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.5        | 59.4      | 68.1 | 68.7 |
| Medium Trucks: | 62.4          | 60.9    | 54.5        | 53.0      | 61.4 | 61.7 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.6          | 68.9    | 66.0        | 61.0      | 69.6 | 70.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 94     | 203    | 437    | 940    |
| CNEL: | 101    | 218    | 470    | 1,013  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |  |        |         |                       |        |
|--|--|---|--|--------|---------|-----------------------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |                       |        |
| Average Daily Traffic (Adt): 50,200 vehicles |  | Autos: 15                                     |  |        |         |                       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |  |        |         |                       |        |
| Peak Hour Volume: 5,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |  |        |         |                       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |  |        |         |                       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   |  | Day    | Evening | Night                 | Daily  |
| <b>Site Data</b>                             |  | Autos:  |  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |  |        |         |                       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  |  | 2.000  |         |                       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                |  | 4.000  |         |                       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 |  | 8.006  |         | Grade Adjustment: 0.0 |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |                       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  |  | 48.505 |         |                       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                |  | 48.423 |         |                       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 |  | 48.506 |         |                       |        |
| Right View: 90.0 degrees                     |  |   |  |        |         |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.46         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.78       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.74       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 76.9          | 75.0    | 73.2        | 67.2      | 75.8 | 76.4 |
| Medium Trucks: | 70.0          | 68.5    | 62.1        | 60.6      | 69.0 | 69.3 |
| Heavy Trucks:  | 69.3          | 67.9    | 58.9        | 60.1      | 68.5 | 68.6 |
| Vehicle Noise: | 78.3          | 76.5    | 73.7        | 68.7      | 77.3 | 77.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 304    | 656    | 1,413  | 3,044  |
| CNEL: | 328    | 707    | 1,523  | 3,281  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: s/o Roosevelt      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,300 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.69         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.54       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.50       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.1          | 75.2    | 73.5        | 67.4      | 76.0 | 76.6 |
| Medium Trucks: | 70.2          | 68.7    | 62.4        | 60.8      | 69.3 | 69.5 |
| Heavy Trucks:  | 69.6          | 68.2    | 59.1        | 60.4      | 68.7 | 68.8 |
| Vehicle Noise: | 78.5          | 76.8    | 73.9        | 68.9      | 77.5 | 78.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 316    | 680    | 1,465  | 3,156  |
| CNEL: | 340    | 733    | 1,579  | 3,402  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: n/o I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 62,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 6,200 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.86       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.82       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.2        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 350    | 755    | 1,626  | 3,503  |
| CNEL: | 378    | 814    | 1,753  | 3,777  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Burt Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.9          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.7    | 68.8        | 63.8      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 310    | 669    | 1,441  |
| CNEL: | 155    | 334    | 720    | 1,552  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|  |  |
|--|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: Sand Canyon. Av.<br>Road Segment: b/w Burt Rd. and Oak Cyn./Laguna Cyn. Rd. | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|--|--|

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,380 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.09       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.3        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.2          | 63.7    | 57.4        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.5        | 55.7      | 64.1 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.8        | 63.9      | 72.5 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 146    | 314    | 676    | 1,457  |
| CNEL: | 157    | 338    | 728    | 1,569  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: n/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 43,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,320 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.08       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.04       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.3      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 271    | 584    | 1,259  |
| CNEL: | 136    | 292    | 629    | 1,356  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

|   |  |
|---|--|
| Scenario: Post 2030 - 2012 Modified Project (Option 1)<br>Road Name: Sand Canyon. Av.<br>Road Segment: s/o Waterworks Wy. | Project Name: 2012 Great Park GPA/ZC<br>Job Number: 8141<br>Analyst: B. Lawson |
|---|--|

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 38,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,890 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.70         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.50       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 253    | 545    | 1,174  |
| CNEL: | 126    | 272    | 587    | 1,264  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.74         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.49       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.45       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 60.9      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.1    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.4    | 67.5        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,182  |
| CNEL: | 127    | 274    | 591    | 1,273  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Job Number: 8141  
 Road Segment: b/w Alton Pkwy.and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 41,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.98         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.26       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.21       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.3        | 54.6      | 62.9 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,226  |
| CNEL: | 132    | 284    | 613    | 1,320  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.      Job Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|----------------|---|-----|---------|-------|-------|--|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt):             | 8,900 vehicles | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume:                        | 890 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed:                           | 50 mph         | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance:                  | 70 feet        |   |     |         |       |       |  |
| Site Data                                |                | VehicleType                               | Day | Evening | Night | Daily |  |
|  |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
|  |                | Noise Source Elevations (in feet)         |     |         |       |       |  |
|  |                | Autos: 2.000                              |     |         |       |       |  |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 4.000                      |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet |                |   |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 93.723                             |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 93.680                     |     |         |       |       |  |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 93.723                      |     |         |       |       |  |
| Road Elevation: 0.0 feet                 |                |   |     |         |       |       |  |
| Road Grade: 0.0%                         |                |   |     |         |       |       |  |
| Left View: -90.0 degrees                 |                |   |     |         |       |       |  |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.91        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.15       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.11       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.2        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 53.9    | 47.6        | 46.0      | 54.5 | 54.7 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.4        | 46.7      | 55.0 | 55.1 |
| Vehicle Noise: | 63.6          | 61.8    | 58.8        | 54.0      | 62.6 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 319    |
| CNEL: | 34     | 74     | 159    | 343    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.      Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -4.17        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -21.41       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -25.36       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.6          | 56.7    | 54.9        | 48.9      | 57.5 | 58.1 |
| Medium Trucks: | 52.3          | 50.8    | 44.5        | 42.9      | 51.4 | 51.6 |
| Heavy Trucks:  | 53.2          | 51.8    | 42.7        | 44.0      | 52.3 | 52.4 |
| Vehicle Noise: | 60.4          | 58.7    | 55.5        | 50.8      | 59.4 | 59.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 42     | 91     | 196    |
| CNEL: | 21     | 45     | 98     | 210    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santiago Canyon Rd.      Job Number: 8141  
 Road Segment: e/o SR-241 NB Ramp      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Scientific Wy.      Job Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Spectrum      Job Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--------------------------------|----------------|---|-----|---------|-------|-------|--|
| Highway Data                   |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt):   | 2,900 vehicles | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume:              | 290 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed:                 | 35 mph         | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance:        | 20 feet        | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                      |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier:   | 100.0 feet     | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation:                 | 0.0 feet       | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation:                | 0.0 feet       | Autos: 99.544                             |     |         |       |       |  |
| Road Grade:                    | 0.0%           | Medium Trucks: 99.504                     |     |         |       |       |  |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 99.544                      |     |         |       |       |  |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -6.24        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -23.47       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -27.43       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.3          | 50.4    | 48.6        | 42.6      | 51.2 | 51.8 |
| Medium Trucks: | 46.5          | 45.0    | 38.6        | 37.1      | 45.5 | 45.8 |
| Heavy Trucks:  | 48.3          | 46.9    | 37.9        | 39.1      | 47.5 | 47.6 |
| Vehicle Noise: | 54.5          | 52.8    | 49.3        | 45.0      | 53.5 | 53.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 17     | 37     | 79     |
| CNEL: | 8      | 18     | 39     | 85     |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sterling      Job Number: 8141  
 Road Segment: b/w Rockfield Bl and Barrana Pkwy      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |              | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph       | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet      | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |              | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -20.86       | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -38.10       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -42.05       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 37.7          | 35.8    | 34.0        | 27.9      | 36.6 | 37.2 |
| Medium Trucks: | 31.9          | 30.4    | 24.0        | 22.5      | 30.9 | 31.1 |
| Heavy Trucks:  | 33.7          | 32.3    | 23.3        | 24.5      | 32.9 | 33.0 |
| Vehicle Noise: | 39.9          | 38.2    | 34.7        | 30.3      | 38.9 | 39.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 1      | 2      | 4      | 8      |
| CNEL: | 1      | 2      | 4      | 9      |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Job Number: 8141  
 Road Segment: e/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.1 |
| Medium Trucks: | 59.9          | 58.4    | 52.1        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 60.0          | 58.5    | 49.5        | 50.8      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.4    | 63.4        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 639    |
| CNEL: | 69     | 148    | 319    | 688    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Job Number: 8141  
 Road Segment: w/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.78        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.02       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.98       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.8          | 57.3    | 50.9        | 49.4      | 57.8 | 58.1 |
| Heavy Trucks:  | 58.8          | 57.4    | 48.4        | 49.6      | 58.0 | 58.1 |
| Vehicle Noise: | 67.0          | 65.2    | 62.3        | 57.4      | 65.9 | 66.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 116    | 249    | 537    |
| CNEL: | 58     | 124    | 268    | 577    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Job Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 17,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,710 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.871 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.830 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.871 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.08        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.32       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.27       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 58.1          | 56.6    | 50.2        | 48.7      | 57.1 | 57.4 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.0        | 49.3      | 57.6 | 57.8 |
| Vehicle Noise: | 66.2          | 64.5    | 61.4        | 56.6      | 65.2 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 103    | 221    | 477    |
| CNEL: | 51     | 110    | 238    | 512    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 6,300 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 630 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.83        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.07       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.7        | 51.6      | 60.3 | 60.9 |
| Medium Trucks: | 54.7          | 53.2    | 46.9        | 45.3      | 53.8 | 54.0 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.3        | 45.6      | 53.9 | 54.1 |
| Vehicle Noise: | 62.9          | 61.2    | 58.2        | 53.3      | 61.9 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 62     | 134    | 288    |
| CNEL: | 31     | 67     | 144    | 310    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Job Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 6,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 620 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -4.48        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.72       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.68       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.3          | 58.4    | 56.7        | 50.6      | 59.2 | 59.8 |
| Medium Trucks: | 53.9          | 52.4    | 46.0        | 44.5      | 52.9 | 53.2 |
| Heavy Trucks:  | 54.3          | 52.9    | 43.8        | 45.1      | 53.4 | 53.6 |
| Vehicle Noise: | 62.0          | 60.3    | 57.2        | 52.4      | 61.0 | 61.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 25     | 54     | 116    | 251    |
| CNEL: | 27     | 58     | 125    | 269    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Job Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA     |                | NOISE MODEL INPUTS                        |     |         |       |       |  |
|------------------------------|----------------|---|-----|---------|-------|-------|--|
| Highway Data                 |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): | 7,000 vehicles | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage:        | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume:            | 700 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed:               | 45 mph         | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance:      | 36 feet        |   |     |         |       |       |  |
| Site Data                    |                | VehicleType                               | Day | Evening | Night | Daily |  |
|                              |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
|                              |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
|                              |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
|                              |                | Noise Source Elevations (in feet)         |     |         |       |       |  |
|                              |                | Autos: 2.000                              |     |         |       |       |  |
|                              |                | Medium Trucks: 4.000                      |     |         |       |       |  |
|                              |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
|                              |                | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
|                              |                | Autos: 98.412                             |     |         |       |       |  |
| Medium Trucks: 98.372        |                |   |     |         |       |       |  |
| Heavy Trucks: 98.413         |                |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -3.50        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -20.74       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -24.69       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.2          | 57.3    | 55.6        | 49.5      | 58.1 | 58.8 |
| Medium Trucks: | 53.0          | 51.5    | 45.1        | 43.6      | 52.0 | 52.3 |
| Heavy Trucks:  | 53.8          | 52.4    | 43.4        | 44.6      | 53.0 | 53.1 |
| Vehicle Noise: | 61.1          | 59.3    | 56.2        | 51.5      | 60.1 | 60.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 22     | 47     | 101    | 217    |
| CNEL: | 23     | 50     | 108    | 233    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Job Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.38        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 55.0          | 53.5    | 47.1        | 45.6      | 54.0 | 54.3 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.1          | 61.4    | 58.3        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 148    | 319    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: b/w Culver Dr. and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 38,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,850 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.7        | 53.2      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.8 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 208    | 447    | 964    |
| CNEL: | 104    | 223    | 481    | 1,037  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: e/o I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     | NOISE MODEL INPUTS                            |     |         |       |       |
|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,940 vehicles             | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height: 0.0 feet</b>              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.06         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.18       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.8 |
| Medium Trucks: | 59.6          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.2    | 49.2        | 50.5      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 283    | 610    |
| CNEL: | 66     | 141    | 305    | 657    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: e/o Sand Canyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.63         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.60       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.56       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 388    | 836    |
| CNEL: | 90     | 194    | 417    | 899    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: b/w Lake Forest Dr.and Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 35,700 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 3,570 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 55 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 88 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 89.850 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 89.805 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 89.850 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.70         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.53       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.49       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.7        | 59.6      | 68.3 | 68.9 |
| Medium Trucks: | 62.8          | 61.2    | 54.9        | 53.3      | 61.8 | 62.0 |
| Heavy Trucks:  | 62.8          | 61.4    | 52.3        | 53.6      | 61.9 | 62.1 |
| Vehicle Noise: | 70.9          | 69.2    | 66.2        | 61.4      | 69.9 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 212    | 457    | 985    |
| CNEL: | 106    | 228    | 492    | 1,060  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: w/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.2        | 60.1      | 68.7 | 69.4 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.4          | 69.7    | 66.7        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,061  |
| CNEL: | 114    | 246    | 530    | 1,142  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: n/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.81         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.43       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.39       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.2          | 58.7    | 52.3        | 50.8      | 59.2 | 59.5 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.1        | 51.4      | 59.7 | 59.9 |
| Vehicle Noise: | 68.3          | 66.6    | 63.5        | 58.7      | 67.3 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 658    |
| CNEL: | 71     | 152    | 328    | 707    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Job Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |        |                   |       |        |
|--|--|--|--|---|--------|-------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |
| Average Daily Traffic (Adt): 13,700 vehicles |  |  |  | Autos: 15                                     |        |                   |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |
| Peak Hour Volume: 1,370 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |
| Vehicle Speed: 50 mph                        |  |  |  | <b>Vehicle Mix</b>                            |        |                   |       |        |
| Near/Far Lane Distance: 70 feet              |  |  |  | VehicleType                                   | Day    | Evening           | Night | Daily  |
| <b>Site Data</b>                             |  |  |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  |  |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  | Autos:  | 2.000  |                   |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | Medium Trucks:                                | 4.000  |                   |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |
| Pad Elevation: 0.0 feet                      |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Autos:  | 93.723 |                   |       |        |
| Road Grade: 0.0%                             |  |  |  | Medium Trucks:                                | 93.680 |                   |       |        |
| Left View: -90.0 degrees                     |  |  |  | Heavy Trucks:                                 | 93.723 |                   |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |        |                   |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.04        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.28       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.24       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.1        | 54.0      | 62.7 | 63.3 |
| Medium Trucks: | 57.3          | 55.8    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.7          | 56.3    | 47.3        | 48.5      | 56.9 | 57.0 |
| Vehicle Noise: | 65.5          | 63.7    | 60.7        | 55.9      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 92     | 197    | 425    |
| CNEL: | 46     | 98     | 212    | 457    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Job Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.14        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.38       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.33       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.3    | 61.4        | 56.5      | 65.1 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 468    |
| CNEL: | 50     | 109    | 234    | 504    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Job Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 3,140 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 195    | 420    | 905    |
| CNEL: | 97     | 210    | 452    | 973    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Job Number: 8141  
 Road Segment: n/o La Colina Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 31,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.13         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.06       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 419    | 903    |
| CNEL: | 97     | 209    | 451    | 971    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Job Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.63         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.60       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.56       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 388    | 836    |
| CNEL: | 90     | 194    | 417    | 899    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: University Dr.      Job Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Michelson Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 60,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 6,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.58         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.66       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.61       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.5          | 70.6    | 68.8        | 62.8      | 71.4 | 72.0 |
| Medium Trucks: | 65.7          | 64.2    | 57.8        | 56.3      | 64.8 | 65.0 |
| Heavy Trucks:  | 65.4          | 64.0    | 54.9        | 56.2      | 64.5 | 64.7 |
| Vehicle Noise: | 74.0          | 72.2    | 69.3        | 64.4      | 72.9 | 73.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 157    | 338    | 727    | 1,567  |
| CNEL: | 169    | 364    | 783    | 1,688  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Job Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.28         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 810    |
| CNEL: | 87     | 188    | 405    | 872    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Job Number: 8141  
 Road Segment: e/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 839    |
| CNEL: | 90     | 195    | 419    | 903    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.1 |
| Medium Trucks: | 60.9          | 59.4    | 53.1        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.4    | 64.4        | 59.5      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 346    | 746    |
| CNEL: | 80     | 173    | 372    | 802    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Job Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,590 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.31         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 343    | 740    |
| CNEL: | 80     | 171    | 369    | 796    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Job Number: 8141  
 Road Segment: e/o Yale Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 13,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,300 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.68        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.92       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.5      | 56.9 | 57.2 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.3    | 61.4        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 467    |
| CNEL: | 50     | 108    | 233    | 503    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av./I-5 SB Ramps      Job Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.08         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.5      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.2        | 50.5      | 58.8 | 59.0 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 612    |
| CNEL: | 66     | 142    | 306    | 659    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Job Number: 8141  
 Road Segment: w/o Paseo Westpark      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.45        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.64       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.1        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.3        | 47.7      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.6    | 60.6        | 55.7      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 193    | 416    |
| CNEL: | 45     | 96     | 207    | 447    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Job Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 10,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.85       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.9        | 53.8      | 62.4 | 63.0 |
| Medium Trucks: | 56.9          | 55.4    | 49.1        | 47.5      | 56.0 | 56.2 |
| Heavy Trucks:  | 57.0          | 55.5    | 46.5        | 47.7      | 56.1 | 56.2 |
| Vehicle Noise: | 65.1          | 63.4    | 60.4        | 55.5      | 64.1 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 87     | 187    | 403    |
| CNEL: | 43     | 93     | 201    | 433    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Job Number: 8141  
 Road Segment: b/w Culver Dr. and W. Yale Loop      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,120 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.2          | 55.7    | 49.4        | 47.8      | 56.3 | 56.5 |
| Heavy Trucks:  | 57.3          | 55.9    | 46.8        | 48.1      | 56.4 | 56.6 |
| Vehicle Noise: | 65.4          | 63.7    | 60.7        | 55.8      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 91     | 196    | 423    |
| CNEL: | 46     | 98     | 211    | 455    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop      Job Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,500 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 650 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.69        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.89       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.5          | 59.6    | 57.8        | 51.8      | 60.4 | 61.0 |
| Medium Trucks: | 54.9          | 53.4    | 47.0        | 45.5      | 53.9 | 54.2 |
| Heavy Trucks:  | 54.9          | 53.5    | 44.5        | 45.7      | 54.1 | 54.2 |
| Vehicle Noise: | 63.1          | 61.3    | 58.4        | 53.5      | 62.0 | 62.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 137    | 294    |
| CNEL: | 32     | 68     | 147    | 317    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop      Job Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.92        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.3          | 62.4    | 60.6        | 54.5      | 63.2 | 63.8 |
| Medium Trucks: | 57.7          | 56.1    | 49.8        | 48.2      | 56.7 | 56.9 |
| Heavy Trucks:  | 57.7          | 56.3    | 47.2        | 48.5      | 56.8 | 57.0 |
| Vehicle Noise: | 65.8          | 64.1    | 61.1        | 56.3      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 225    | 485    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: b/w Portola and Arborwood      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>   |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):  | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:   | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:  | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:   | 20 feet        |   |     |         |       |       |
| <b>Site Data</b>  |                | VehicleType                                   | Day | Evening | Night | Daily |
| <div><b>Barrier Height:</b> 0.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 100.0 feet</div> <div>Centerline Dist. to Observer: 100.0 feet</div> <div>Barrier Distance to Observer: 0.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 0.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div> <div>Left View: -90.0 degrees</div> <div>Right View: 90.0 degrees</div> <td colspan="5">Autos: 77.5% 12.9% 9.6% 97.42%</td> |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|   |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|   |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|   |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|   |                | Autos: 2.000                                  |     |         |       |       |
|   |                | Medium Trucks: 4.000                          |     |         |       |       |
|   |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|   |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|   |                | Autos: 99.544                                 |     |         |       |       |
|   |                | Medium Trucks: 99.504                         |     |         |       |       |
|   |                | Heavy Trucks: 99.544                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.08        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.32       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.27       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.4          | 53.5    | 51.8        | 45.7      | 54.3 | 54.9 |
| Medium Trucks: | 49.6          | 48.1    | 41.8        | 40.2      | 48.7 | 48.9 |
| Heavy Trucks:  | 51.5          | 50.1    | 41.0        | 42.3      | 50.7 | 50.8 |
| Vehicle Noise: | 57.7          | 55.9    | 52.5        | 48.1      | 56.6 | 57.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 28     | 60     | 129    |
| CNEL: | 14     | 30     | 64     | 138    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: b/w Park Pl. and Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.14        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.38       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.33       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.4        | 54.3      | 62.9 | 63.6 |
| Medium Trucks: | 57.4          | 55.9    | 49.6        | 48.0      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.5          | 56.0    | 47.0        | 48.3      | 56.6 | 56.7 |
| Vehicle Noise: | 65.6          | 63.9    | 60.9        | 56.0      | 64.6 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 94     | 202    | 436    |
| CNEL: | 47     | 101    | 218    | 469    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|--------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):   | 8,600 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:              | 860 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>               |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height:                | 0.0 feet       | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation:                | 0.0 feet       | Autos:  | 96.607 |                       |       |        |
| Road Grade:                    | 0.0%           | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View:                     | -90.0 degrees  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View:                    | 90.0 degrees   |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.48        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 53.0      | 61.6 | 62.2 |
| Medium Trucks: | 56.1          | 54.6    | 48.2        | 46.7      | 55.1 | 55.4 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 64.3          | 62.5    | 59.6        | 54.7      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 165    | 355    |
| CNEL: | 38     | 82     | 177    | 382    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |  | NOISE MODEL INPUTS                            |     |         |       |                       |        |
|--|--|--|---|-----|---------|-------|-----------------------|--------|
| <b>Highway Data</b>  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |                       |        |
| Average Daily Traffic (Adt): 10,000 vehicles   |  |  | Autos: 15                                     |     |         |       |                       |        |
| Peak Hour Percentage: 10%  |  |  | Medium Trucks (2 Axles): 15                   |     |         |       |                       |        |
| Peak Hour Volume: 1,000 vehicles   |  |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |                       |        |
| Vehicle Speed: 55 mph  |  |  | <b>Vehicle Mix</b>                            |     |         |       |                       |        |
| Near/Far Lane Distance: 52 feet  |  |  |   |     |         |       |                       |        |
| <b>Site Data</b>   |  |  | VehicleType                                   | Day | Evening | Night | Daily                 |        |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |  | Autos:  |     | 77.5%   | 12.9% | 9.6%                  | 97.42% |
|  |  |  | Medium Trucks:                                |     | 84.8%   | 4.9%  | 10.3%                 | 1.84%  |
|  |  |  | Heavy Trucks:                                 |     | 86.5%   | 2.7%  | 10.8%                 | 0.74%  |
|  |  |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |                       |        |
|  |  |  | Autos:  |     | 2.000   |       |                       |        |
|  |  |  | Medium Trucks:                                |     | 4.000   |       |                       |        |
|  |  |  | Heavy Trucks:                                 |     | 8.006   |       | Grade Adjustment: 0.0 |        |
|  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |                       |        |
|  |  |  | Autos:  |     | 96.607  |       |                       |        |
|  |  |  | Medium Trucks:                                |     | 96.566  |       |                       |        |
|  |  |  | Heavy Trucks:                                 |     | 96.608  |       |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.82        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.4          | 61.5    | 59.7        | 53.6      | 62.3 | 62.9 |
| Medium Trucks: | 56.8          | 55.2    | 48.9        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.3        | 47.6      | 55.9 | 56.1 |
| Vehicle Noise: | 64.9          | 63.2    | 60.2        | 55.4      | 63.9 | 64.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 85     | 182    | 392    |
| CNEL: | 42     | 91     | 196    | 422    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: n/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 13,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,340 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.871 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.830 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.871 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.14        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.38       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.33       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.8        | 53.7      | 62.4 | 63.0 |
| Medium Trucks: | 57.0          | 55.5    | 49.1        | 47.6      | 56.1 | 56.3 |
| Heavy Trucks:  | 57.4          | 56.0    | 47.0        | 48.2      | 56.6 | 56.7 |
| Vehicle Noise: | 65.1          | 63.4    | 60.4        | 55.6      | 64.1 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 87     | 188    | 405    |
| CNEL: | 44     | 94     | 202    | 435    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: s/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |  |       |                       | NOISE MODEL INPUTS                            |  |        |         |       |        |
|--|--|-------|-----------------------|---|--|--------|---------|-------|--------|
| <b>Highway Data</b>  |  |       |                       | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |       |        |
| Average Daily Traffic (Adt): 12,100 vehicles   |  |       |                       | Autos: 15                                     |  |        |         |       |        |
| Peak Hour Percentage: 10%  |  |       |                       | Medium Trucks (2 Axles): 15                   |  |        |         |       |        |
| Peak Hour Volume: 1,210 vehicles   |  |       |                       | Heavy Trucks (3+ Axles): 15                   |  |        |         |       |        |
| Vehicle Speed: 55 mph  |  |       |                       | <b>Vehicle Mix</b>                            |  |        |         |       |        |
| Near/Far Lane Distance: 52 feet  |  |       |                       |   |  |        |         |       |        |
| <b>Site Data</b>   |  |       |                       | VehicleType                                   |  | Day    | Evening | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |  |       |                       | Autos:  |  | 77.5%  | 12.9%   | 9.6%  | 97.42% |
|  |  |       |                       | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3% | 1.84%  |
|  |  |       |                       | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8% | 0.74%  |
|  |  |       |                       | <b>Noise Source Elevations (in feet)</b>      |  |        |         |       |        |
|  |  |       |                       | Autos:  |  | 2.000  |         |       |        |
| Medium Trucks:   |  | 4.000 |                       |   |  |        |         |       |        |
| Heavy Trucks:  |  | 8.006 | Grade Adjustment: 0.0 |   |  |        |         |       |        |
|  |  |       |                       | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |       |        |
|  |  |       |                       | Autos:  |  | 96.607 |         |       |        |
|  |  |       |                       | Medium Trucks:                                |  | 96.566 |         |       |        |
|  |  |       |                       | Heavy Trucks:                                 |  | 96.608 |         |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.99        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.6 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 96     | 207    | 445    |
| CNEL: | 48     | 103    | 222    | 479    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: b/w Deerfield Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.72        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.95       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.91       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.3    | 50.0        | 48.4      | 56.9 | 57.1 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.4        | 48.7      | 57.0 | 57.2 |
| Vehicle Noise: | 66.0          | 64.3    | 61.3        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 46     | 100    | 216    | 465    |
| CNEL: | 50     | 108    | 232    | 500    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Job Number: 8141  
 Road Segment: b/w ICD and Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 11,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,120 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.2          | 55.7    | 49.4        | 47.8      | 56.3 | 56.5 |
| Heavy Trucks:  | 57.3          | 55.9    | 46.8        | 48.1      | 56.4 | 56.6 |
| Vehicle Noise: | 65.4          | 63.7    | 60.7        | 55.8      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 91     | 196    | 423    |
| CNEL: | 46     | 98     | 211    | 455    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas      Job Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| Highway Data                   |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):   | 1,600 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:              | 160 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                 | 40 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:        | 12 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                      |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 99.865                             |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 99.825                     |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 99.865                      |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -9.40        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -26.64       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -30.59       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 51.3          | 49.4    | 47.6        | 41.6      | 50.2 | 50.8 |
| Medium Trucks: | 45.3          | 43.8    | 37.4        | 35.9      | 44.3 | 44.6 |
| Heavy Trucks:  | 46.6          | 45.2    | 36.1        | 37.4      | 45.7 | 45.9 |
| Vehicle Noise: | 53.3          | 51.6    | 48.3        | 43.8      | 52.3 | 52.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 7      | 14     | 31     | 66     |
| CNEL: | 7      | 15     | 33     | 71     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas      Job Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.41        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -19.65       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -23.60       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.6        | 48.6      | 57.2 | 57.8 |
| Medium Trucks: | 52.3          | 50.8    | 44.4        | 42.8      | 51.3 | 51.5 |
| Heavy Trucks:  | 53.6          | 52.2    | 43.1        | 44.4      | 52.7 | 52.9 |
| Vehicle Noise: | 60.3          | 58.6    | 55.3        | 50.7      | 59.3 | 59.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 42     | 90     | 193    |
| CNEL: | 21     | 44     | 96     | 206    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: w/o "F" St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 43,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,310 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.14         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.3      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.5    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 271    | 583    | 1,257  |
| CNEL: | 135    | 292    | 628    | 1,354  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o "F" St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 71,500 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 7,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.34         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.90       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.85       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.2          | 71.4    | 69.6        | 63.5      | 72.2 | 72.8 |
| Medium Trucks: | 66.5          | 65.0    | 58.6        | 57.1      | 65.5 | 65.8 |
| Heavy Trucks:  | 66.2          | 64.7    | 55.7        | 57.0      | 65.3 | 65.4 |
| Vehicle Noise: | 74.7          | 73.0    | 70.1        | 65.1      | 73.7 | 74.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 176    | 379    | 818    | 1,761  |
| CNEL: | 190    | 409    | 880    | 1,897  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Job Number: 8141  
 Road Segment: e/o Fairbanks      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 43,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.5        | 54.9      | 63.4 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.8    | 67.9        | 63.0      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 127    | 273    | 589    | 1,268  |
| CNEL: | 137    | 294    | 634    | 1,366  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Job Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 810 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.35        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -19.59       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -23.55       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.7        | 48.6      | 57.2 | 57.9 |
| Medium Trucks: | 52.3          | 50.8    | 44.4        | 42.9      | 51.4 | 51.6 |
| Heavy Trucks:  | 53.6          | 52.2    | 43.2        | 44.4      | 52.8 | 52.9 |
| Vehicle Noise: | 60.4          | 58.6    | 55.3        | 50.8      | 59.3 | 59.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 42     | 90     | 194    |
| CNEL: | 21     | 45     | 97     | 208    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Job Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 5,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 580 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -4.32        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -21.56       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -25.51       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.4          | 56.5    | 54.8        | 48.7      | 57.3 | 57.9 |
| Medium Trucks: | 52.2          | 50.7    | 44.3        | 42.8      | 51.2 | 51.5 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.6        | 43.8      | 52.2 | 52.3 |
| Vehicle Noise: | 60.3          | 58.5    | 55.4        | 50.7      | 59.2 | 59.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 41     | 89     | 192    |
| CNEL: | 21     | 44     | 95     | 206    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Job Number: 8141  
 Road Segment: s/o Astor St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 410 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -5.31        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -22.55       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -26.51       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.4          | 53.5    | 51.7        | 45.7      | 54.3 | 54.9 |
| Medium Trucks: | 49.4          | 47.8    | 41.5        | 39.9      | 48.4 | 48.6 |
| Heavy Trucks:  | 50.7          | 49.3    | 40.2        | 41.5      | 49.8 | 50.0 |
| Vehicle Noise: | 57.4          | 55.7    | 52.4        | 47.8      | 56.4 | 56.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 27     | 57     | 123    |
| CNEL: | 13     | 28     | 61     | 132    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Job Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                 | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|-----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                 | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 100 vehicles    | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%             | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 10 vehicles     | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 45 mph          |   |     |         |       |       |
| Near/Far Lane Distance:        | 36 feet         |   |     |         |       |       |
| <b>Site Data</b>               |                 |   |     |         |       |       |
| <b>Barrier Height:</b>         | <b>0.0 feet</b> |   |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0             |   |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet      |   |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet      |   |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet        |   |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet        |   |     |         |       |       |
| Pad Elevation:                 | 0.0 feet        |   |     |         |       |       |
| Road Elevation:                | 0.0 feet        |   |     |         |       |       |
| Road Grade:                    | 0.0%            |   |     |         |       |       |
| Left View:                     | -90.0 degrees   |   |     |         |       |       |
| Right View:                    | 90.0 degrees    |   |     |         |       |       |
|                                |                 | <b>Vehicle Mix</b>                            |     |         |       |       |
|                                |                 | VehicleType                                   | Day | Evening | Night | Daily |
|                                |                 | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|                                |                 | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|                                |                 | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|                                |                 | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|                                |                 | Autos: 2.000                                  |     |         |       |       |
|                                |                 | Medium Trucks: 4.000                          |     |         |       |       |
|                                |                 | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|                                |                 | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|                                |                 | Autos: 98.412                                 |     |         |       |       |
|                                |                 | Medium Trucks: 98.372                         |     |         |       |       |
|                                |                 | Heavy Trucks: 98.413                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -21.95       | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -39.19       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -43.15       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 40.8          | 38.9    | 37.1        | 31.1      | 39.7 | 40.3 |
| Medium Trucks: | 34.5          | 33.0    | 26.7        | 25.1      | 33.6 | 33.8 |
| Heavy Trucks:  | 35.4          | 34.0    | 24.9        | 26.2      | 34.5 | 34.7 |
| Vehicle Noise: | 42.6          | 40.9    | 37.7        | 33.1      | 41.6 | 42.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 1      | 3      | 6      | 13     |
| CNEL: | 1      | 3      | 6      | 14     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 1)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Job Number: 8141  
 Road Segment: w/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 40 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 12 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 99.865 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 99.825 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 99.865 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | 1.95         | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -15.29       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -19.25       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.6          | 60.7    | 59.0        | 52.9      | 61.5 | 62.2 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 64.7          | 62.9    | 59.6        | 55.1      | 63.6 | 64.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 81     | 175    | 376    |
| CNEL: | 40     | 87     | 187    | 403    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ada      Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 2,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:  | 280 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:   | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>   |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|  |                | Autos: 2.000                                  |     |         |       |       |
|  |                | Medium Trucks: 4.000                          |     |         |       |       |
|  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|  |                | Autos: 96.607                                 |     |         |       |       |
|  |                | Medium Trucks: 96.566                         |     |         |       |       |
|  |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -8.35        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -25.59       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -29.55       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.8          | 55.9    | 54.2        | 48.1      | 56.7 | 57.3 |
| Medium Trucks: | 51.2          | 49.7    | 43.4        | 41.8      | 50.3 | 50.5 |
| Heavy Trucks:  | 51.3          | 49.8    | 40.8        | 42.0      | 50.4 | 50.5 |
| Vehicle Noise: | 59.4          | 57.7    | 54.7        | 49.8      | 58.4 | 58.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 17     | 36     | 78     | 168    |
| CNEL: | 18     | 39     | 84     | 181    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.07         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.17       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.13       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.2        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.3 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 224    | 483    | 1,042  |
| CNEL: | 112    | 241    | 520    | 1,121  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 43,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,300 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.51         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.73       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.68       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.2      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 112    | 240    | 518    | 1,115  |
| CNEL: | 120    | 259    | 557    | 1,200  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 59,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 644    | 1,388  |
| CNEL: | 149    | 322    | 693    | 1,493  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 60,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.97         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.27       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.23       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 68.0        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 647    | 1,394  |
| CNEL: | 150    | 323    | 696    | 1,500  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 66,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 6,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 5.37         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.87       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.82       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.4        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.4          | 63.9    | 57.6        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.5          | 64.0    | 55.0        | 56.2      | 64.6 | 64.7 |
| Vehicle Noise: | 73.6          | 71.8    | 68.9        | 64.0      | 72.6 | 73.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 148    | 320    | 689    | 1,484  |
| CNEL: | 160    | 344    | 741    | 1,597  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: s/o I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,330 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.79       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.75       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 277    | 597    | 1,287  |
| CNEL: | 138    | 298    | 643    | 1,385  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 45,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,580 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.79         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.45       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.41       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 70.0 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.9          | 62.4    | 53.4        | 54.7      | 63.0 | 63.1 |
| Vehicle Noise: | 72.0          | 70.3    | 67.3        | 62.4      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 116    | 251    | 540    | 1,163  |
| CNEL: | 125    | 270    | 581    | 1,252  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alicia Pkwy.      Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,450 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.58       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 570    | 1,228  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Aliso Creek Rd.      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,850 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.26         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.98       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.93       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.4      | 64.0 | 64.6 |
| Medium Trucks: | 58.6          | 57.1    | 50.8        | 49.2      | 57.7 | 57.9 |
| Heavy Trucks:  | 59.1          | 57.6    | 48.6        | 49.8      | 58.2 | 58.3 |
| Vehicle Noise: | 66.8          | 65.0    | 62.0        | 57.2      | 65.7 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 241    | 519    |
| CNEL: | 56     | 120    | 259    | 558    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.1          | 67.2    | 65.4        | 59.3      | 68.0 | 68.6 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.8    | 65.9        | 60.9      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 199    | 429    | 925    |
| CNEL: | 100    | 215    | 462    | 996    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.85         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.39       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.35       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.4        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.6        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.5          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.6 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 373    | 803    |
| CNEL: | 86     | 186    | 401    | 864    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o W. Yale Loop      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,200 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,820 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.68         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.1      | 66.8 | 67.4 |
| Medium Trucks: | 61.3          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.4          | 67.7    | 64.7        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 169    | 363    | 783    |
| CNEL: | 84     | 182    | 391    | 842    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Lake Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.39         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.80       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 69.2          | 67.4    | 64.4        | 59.6      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 348    | 749    |
| CNEL: | 81     | 174    | 374    | 806    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Creek Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.7 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.0        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 381    | 822    |
| CNEL: | 88     | 190    | 410    | 884    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Jeffrey Rd. and Royal Oak      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,370 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.92         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.31       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.27       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 324    | 697    |
| CNEL: | 75     | 162    | 348    | 750    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Royal Oak and Valley Oak      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.42         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.82       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.77       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.5        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 139    | 300    | 645    |
| CNEL: | 69     | 150    | 322    | 694    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: w/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.02         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.22       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.17       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.3        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.2          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.6    | 64.8        | 59.8      | 68.4 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 361    | 778    |
| CNEL: | 84     | 181    | 389    | 838    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.85         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.39       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.34       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.0      | 68.7 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.0 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.5      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.5    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 222    | 478    | 1,031  |
| CNEL: | 111    | 239    | 515    | 1,110  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Pacifica and Banting      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: w/o Meridian      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.32        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.2        | 56.1      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.7    | 51.4        | 49.8      | 58.3 | 58.5 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.8        | 50.1      | 58.4 | 58.6 |
| Vehicle Noise: | 67.4          | 65.7    | 62.7        | 57.9      | 66.4 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 124    | 267    | 576    |
| CNEL: | 62     | 134    | 288    | 620    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Meridian and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 17,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,790 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.67        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.87       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 66.9    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 700    |
| CNEL: | 75     | 162    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Enterprise and Gateway Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 37,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 3,740 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 531    | 1,143  |
| CNEL: | 123    | 265    | 572    | 1,231  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Enterprise and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.96         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.28       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.3        | 55.6      | 63.9 | 64.1 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 307    | 661    | 1,424  |
| CNEL: | 153    | 331    | 712    | 1,534  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w I-5 NB Ramps and Technology Dr. W      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 53,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.12         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.4        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.3          | 63.7    | 57.4        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.5        | 55.7      | 64.1 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.9        | 63.9      | 72.5 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 146    | 314    | 677    | 1,459  |
| CNEL: | 157    | 339    | 729    | 1,571  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: b/w Techonology Dr. W and Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 40,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.30       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.0          | 62.5    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 72.3          | 70.5    | 67.6        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 261    | 561    | 1,210  |
| CNEL: | 130    | 281    | 605    | 1,303  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.30         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.94       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.89       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.5      | 69.1 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.6        | 54.0      | 62.5 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 238    | 513    | 1,104  |
| CNEL: | 119    | 256    | 552    | 1,189  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.    Number: 8141  
 Road Segment: w/o Marine Wy.    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 531    | 1,143  |
| CNEL: | 123    | 265    | 572    | 1,231  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: e/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 37,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 531    | 1,143  |
| CNEL: | 123    | 265    | 572    | 1,231  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: s/o Barranca Pkwy./Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 37,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.8        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.3        | 62.3      | 70.9 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 246    | 530    | 1,141  |
| CNEL: | 123    | 265    | 571    | 1,229  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o Barranca Pkwy./Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.21       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.3        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.4        | 54.6      | 63.0 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.8        | 62.8      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 266    | 573    | 1,235  |
| CNEL: | 133    | 287    | 618    | 1,331  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 42,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.21       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.3        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.4        | 54.6      | 63.0 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.8        | 62.8      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 266    | 573    | 1,235  |
| CNEL: | 133    | 287    | 618    | 1,331  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 38,200 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 3,820 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.62         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.62       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.57       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.9        | 60.8      | 69.4 | 70.0 |
| Medium Trucks: | 63.8          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.4          | 62.0    | 53.0        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 72.0          | 70.2    | 67.4        | 62.4      | 71.0 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 116    | 250    | 538    | 1,160  |
| CNEL: | 125    | 269    | 580    | 1,249  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: s/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,080 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.69         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.55       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.51       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.6          | 67.7    | 65.9        | 59.9      | 68.5 | 69.1 |
| Medium Trucks: | 62.8          | 61.3    | 55.0        | 53.4      | 61.9 | 62.1 |
| Heavy Trucks:  | 62.5          | 61.1    | 52.0        | 53.3      | 61.6 | 61.8 |
| Vehicle Noise: | 71.1          | 69.3    | 66.4        | 61.5      | 70.0 | 70.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 100    | 216    | 466    | 1,005  |
| CNEL: | 108    | 233    | 502    | 1,082  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,010 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.65       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.61       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.5          | 67.6    | 65.8        | 59.8      | 68.4 | 69.0 |
| Medium Trucks: | 62.7          | 61.2    | 54.9        | 53.3      | 61.8 | 62.0 |
| Heavy Trucks:  | 62.4          | 61.0    | 51.9        | 53.2      | 61.5 | 61.7 |
| Vehicle Noise: | 71.0          | 69.2    | 66.3        | 61.4      | 69.9 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 213    | 459    | 989    |
| CNEL: | 107    | 230    | 495    | 1,066  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: s/o Irvine Bl. / Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 33,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,340 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.04         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.3        | 60.2      | 68.8 | 69.5 |
| Medium Trucks: | 63.2          | 61.7    | 55.3        | 53.8      | 62.2 | 62.5 |
| Heavy Trucks:  | 62.9          | 61.4    | 52.4        | 53.6      | 62.0 | 62.1 |
| Vehicle Noise: | 71.4          | 69.7    | 66.8        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 228    | 492    | 1,060  |
| CNEL: | 114    | 246    | 530    | 1,142  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.92         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.2        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.1          | 62.5    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 72.3          | 70.5    | 67.7        | 62.7      | 71.3 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 261    | 563    | 1,214  |
| CNEL: | 131    | 282    | 607    | 1,307  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o Commercentre      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.44         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.80       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.76       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.5 | 63.8 |
| Heavy Trucks:  | 64.5          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 72.7          | 70.9    | 68.0        | 63.1      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 129    | 277    | 597    | 1,286  |
| CNEL: | 138    | 298    | 642    | 1,383  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: s/o SR-241 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,090 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.49         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.75       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.70       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.0          | 67.2    | 64.2        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 158    | 339    | 731    |
| CNEL: | 79     | 169    | 365    | 785    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Alton Pkwy.      Number: 8141  
 Road Segment: n/o SR-241 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.65         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.59       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.55       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 838    |
| CNEL: | 90     | 194    | 418    | 902    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.37        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.56       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.8        | 52.7      | 61.3 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.6      | 55.0 | 55.3 |
| Heavy Trucks:  | 56.4          | 55.0    | 46.0        | 47.2      | 55.6 | 55.7 |
| Vehicle Noise: | 64.1          | 62.4    | 59.3        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 161    | 347    |
| CNEL: | 37     | 80     | 173    | 373    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Number: 8141  
 Road Segment: w/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 17,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.03        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.27       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.22       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.8          | 62.9    | 61.1        | 55.1      | 63.7 | 64.3 |
| Medium Trucks: | 58.3          | 56.8    | 50.5        | 48.9      | 57.4 | 57.6 |
| Heavy Trucks:  | 58.8          | 57.3    | 48.3        | 49.6      | 57.9 | 58.0 |
| Vehicle Noise: | 66.5          | 64.7    | 61.7        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 231    | 497    |
| CNEL: | 53     | 115    | 248    | 534    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Number: 8141  
 Road Segment: b/w Paseo de Valencia and El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 68.0    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 815    |
| CNEL: | 88     | 189    | 407    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Avenida Carlota      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.30         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.94       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.89       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.4        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 58.9 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.6        | 50.9      | 59.2 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 283    | 609    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: n/o Commercentre Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 33,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.79         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.45       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.40       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.7 | 60.9 |
| Vehicle Noise: | 69.3          | 67.5    | 64.5        | 59.7      | 68.3 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 165    | 355    | 765    |
| CNEL: | 82     | 177    | 382    | 822    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 37,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.38         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -13.86       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.82       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.7          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 69.9          | 68.1    | 65.1        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 389    | 838    |
| CNEL: | 90     | 194    | 418    | 900    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 48,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,840 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.65         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.59       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.55       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.8      | 70.5 | 71.1 |
| Medium Trucks: | 64.8          | 63.3    | 56.9        | 55.4      | 63.8 | 64.1 |
| Heavy Trucks:  | 64.5          | 63.0    | 54.0        | 55.3      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.3    | 68.4        | 63.4      | 72.0 | 72.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 136    | 293    | 630    | 1,358  |
| CNEL: | 146    | 315    | 679    | 1,462  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: b/w Toledo Wy. and Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 56,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.31         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.93       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.88       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.2          | 70.3    | 68.6        | 62.5      | 71.1 | 71.7 |
| Medium Trucks: | 65.4          | 63.9    | 57.6        | 56.0      | 64.5 | 64.7 |
| Heavy Trucks:  | 65.1          | 63.7    | 54.7        | 55.9      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 71.9    | 69.0        | 64.1      | 72.7 | 73.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 150    | 324    | 698    | 1,504  |
| CNEL: | 162    | 349    | 752    | 1,619  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 62,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 6,250 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.76         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.48       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.7          | 70.8    | 69.0        | 62.9      | 71.6 | 72.2 |
| Medium Trucks: | 65.9          | 64.4    | 58.0        | 56.5      | 64.9 | 65.2 |
| Heavy Trucks:  | 65.6          | 64.2    | 55.1        | 56.4      | 64.7 | 64.8 |
| Vehicle Noise: | 74.1          | 72.4    | 69.5        | 64.5      | 73.1 | 73.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 161    | 347    | 747    | 1,610  |
| CNEL: | 173    | 374    | 805    | 1,734  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 62,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.86       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.82       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.2        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 350    | 755    | 1,626  | 3,503  |
| CNEL: | 378    | 814    | 1,753  | 3,777  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: s/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 79,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 7,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.79         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.45       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.40       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.7          | 71.8    | 70.0        | 64.0      | 72.6 | 73.2 |
| Medium Trucks: | 66.9          | 65.4    | 59.1        | 57.5      | 66.0 | 66.2 |
| Heavy Trucks:  | 66.6          | 65.2    | 56.2        | 57.4      | 65.8 | 65.9 |
| Vehicle Noise: | 75.2          | 73.4    | 70.5        | 65.6      | 74.1 | 74.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 189    | 407    | 876    | 1,887  |
| CNEL: | 203    | 438    | 943    | 2,033  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.    Number: 8141  
 Road Segment: n/o I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 83,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 8,310 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 6.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.20       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.9          | 72.0    | 70.2        | 64.2      | 72.8 | 73.4 |
| Medium Trucks: | 67.1          | 65.6    | 59.3        | 57.7      | 66.2 | 66.4 |
| Heavy Trucks:  | 66.8          | 65.4    | 56.4        | 57.6      | 66.0 | 66.1 |
| Vehicle Noise: | 75.4          | 73.6    | 70.7        | 65.8      | 74.3 | 74.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 195    | 419    | 904    | 1,947  |
| CNEL: | 210    | 452    | 973    | 2,097  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Research Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,580 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.34         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.90       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.6        | 60.5      | 69.1 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 70.0    | 67.1        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 239    | 515    | 1,111  |
| CNEL: | 120    | 258    | 555    | 1,196  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: b/w Research Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 17,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,740 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.79        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -18.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.3          | 58.8    | 52.5        | 50.9      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 319    | 687    |
| CNEL: | 74     | 159    | 343    | 739    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: s/ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 16,300 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -1.08        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -18.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -22.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.5    | 52.2        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 68.3          | 66.5    | 63.7        | 58.7      | 67.3 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 305    | 657    |
| CNEL: | 71     | 153    | 329    | 708    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: b/w Lake Forest Dr. and Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 340 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 60 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 76 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -7.89        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -25.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -29.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.0          | 58.1    | 56.4        | 50.3      | 58.9 | 59.5 |
| Medium Trucks: | 53.2          | 51.7    | 45.4        | 43.8      | 52.3 | 52.5 |
| Heavy Trucks:  | 52.9          | 51.5    | 42.5        | 43.7      | 52.1 | 52.2 |
| Vehicle Noise: | 61.5          | 59.7    | 56.9        | 51.9      | 60.5 | 60.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 50     | 107    | 231    |
| CNEL: | 25     | 54     | 116    | 249    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bake Pkwy.      Number: 8141  
 Road Segment: b/w Ridge Route Dr. and Laguna Canyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.87        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -20.10       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -24.06       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.4        | 55.3      | 63.9 | 64.5 |
| Medium Trucks: | 58.3          | 56.8    | 50.4        | 48.9      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.0          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.5          | 64.8    | 61.9        | 56.9      | 65.5 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 108    | 232    | 500    |
| CNEL: | 54     | 116    | 250    | 538    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.1          | 67.2    | 65.4        | 59.3      | 68.0 | 68.6 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.8    | 65.9        | 60.9      | 69.5 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 199    | 429    | 925    |
| CNEL: | 100    | 215    | 462    | 996    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.8          | 60.3    | 53.9        | 52.4      | 60.8 | 61.1 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.4        | 52.6      | 61.0 | 61.1 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 69.0 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 184    | 395    | 852    |
| CNEL: | 92     | 197    | 425    | 917    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o W. Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 29,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,920 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.83         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.36       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.4        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.6 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 173    | 372    | 802    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Lake Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |         |                       |        |  |
|--|--|---|--------|---------|-----------------------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |         |                       |        |  |
| Average Daily Traffic (Adt): 26,100 vehicles |  | Autos: 15                                     |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |         |                       |        |  |
| Peak Hour Volume: 2,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |         |                       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |         |                       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening | Night                 | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |   |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.34         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.85       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.1 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 160    | 345    | 744    |
| CNEL: | 80     | 172    | 371    | 800    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: b/w Creek Rd. and Lyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,490 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.14         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.05       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.7        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.8 | 60.0 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.2        | 59.3      | 67.9 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 155    | 335    | 721    |
| CNEL: | 78     | 167    | 360    | 775    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: w/o E. Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,490 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.14         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.10       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.05       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.7        | 57.6      | 66.2 | 66.8 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.8 | 60.0 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 68.9          | 67.1    | 64.2        | 59.3      | 67.9 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 72     | 155    | 335    | 721    |
| CNEL: | 78     | 167    | 360    | 775    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.60         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.64       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.59       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.1        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 167    | 359    | 774    |
| CNEL: | 83     | 179    | 386    | 832    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.27        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.51       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.46       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.4        | 49.9      | 58.4 | 58.6 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.7    | 62.8        | 57.9      | 66.5 | 66.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 125    | 269    | 581    |
| CNEL: | 62     | 135    | 290    | 625    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,810 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.25        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.48       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.44       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.3          | 57.8    | 51.5        | 49.9      | 58.4 | 58.6 |
| Heavy Trucks:  | 59.4          | 57.9    | 48.9        | 50.2      | 58.5 | 58.6 |
| Vehicle Noise: | 67.5          | 65.8    | 62.8        | 57.9      | 66.5 | 67.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 58     | 126    | 270    | 583    |
| CNEL: | 63     | 135    | 291    | 627    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 15,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.89        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.6        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.7 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 245    | 528    |
| CNEL: | 57     | 122    | 264    | 568    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 14,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,490 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.09        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.33       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.28       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.1          | 63.2    | 61.4        | 55.4      | 64.0 | 64.6 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.5 | 57.8 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.1        | 49.3      | 57.7 | 57.8 |
| Vehicle Noise: | 66.7          | 64.9    | 62.0        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 238    | 512    |
| CNEL: | 55     | 119    | 256    | 551    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: b/w Discovery and Banting      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 13,300 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,330 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.58        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.82       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.78       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.0          | 56.5    | 50.1        | 48.6      | 57.0 | 57.3 |
| Heavy Trucks:  | 58.0          | 56.6    | 47.6        | 48.8      | 57.2 | 57.3 |
| Vehicle Noise: | 66.2          | 64.4    | 61.5        | 56.6      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 102    | 220    | 474    |
| CNEL: | 51     | 110    | 237    | 510    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 18,400 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,840 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.17        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.37       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.0          | 64.1    | 62.3        | 56.3      | 64.9 | 65.5 |
| Medium Trucks: | 59.4          | 57.9    | 51.5        | 50.0      | 58.4 | 58.7 |
| Heavy Trucks:  | 59.4          | 58.0    | 49.0        | 50.2      | 58.6 | 58.7 |
| Vehicle Noise: | 67.6          | 65.8    | 62.9        | 58.0      | 66.6 | 67.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 59     | 127    | 273    | 589    |
| CNEL: | 63     | 137    | 294    | 634    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: b/w I-5 HOV Ramp and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,100 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.40         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.84       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.79       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.0          | 58.6    | 49.6        | 50.8      | 59.2 | 59.3 |
| Vehicle Noise: | 68.2          | 66.4    | 63.4        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 139    | 299    | 643    |
| CNEL: | 69     | 149    | 321    | 692    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: s/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 22,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,240 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.68         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.1      | 65.8 | 66.4 |
| Medium Trucks: | 60.3          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.9    | 49.8        | 51.1      | 59.4 | 59.6 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.9      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 145    | 312    | 672    |
| CNEL: | 72     | 156    | 335    | 723    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: n/o Technology      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.00         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.24       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.20       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.1        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.0    | 64.0        | 59.2      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 152    | 327    | 705    |
| CNEL: | 76     | 163    | 352    | 759    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: e/o Ada      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy.      Number: 8141  
 Road Segment: w/o Marine Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,570 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.28         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.7      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.0          | 67.3    | 64.3        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 342    | 736    |
| CNEL: | 79     | 171    | 368    | 792    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy./Muirlands Bl.      Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,070 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.34         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.90       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.86       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.0 |
| Medium Trucks: | 59.9          | 58.4    | 52.0        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.3    | 63.4        | 58.5      | 67.1 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 137    | 296    | 637    |
| CNEL: | 69     | 148    | 318    | 686    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Barranca Pkwy      Number: 8141  
 Road Segment: e/o Sterling      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |         |                       |        |  |
|--|--|---|--------|---------|-----------------------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |         |                       |        |  |
| Average Daily Traffic (Adt): 16,100 vehicles |  | Autos: 15                                     |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |         |                       |        |  |
| Peak Hour Volume: 1,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |         |                       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |         |                       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening | Night                 | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |   |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.75        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.99       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.8        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.8          | 57.3    | 51.0        | 49.4      | 57.9 | 58.1 |
| Heavy Trucks:  | 58.9          | 57.4    | 48.4        | 49.6      | 58.0 | 58.1 |
| Vehicle Noise: | 67.0          | 65.2    | 62.3        | 57.4      | 66.0 | 66.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 116    | 250    | 539    |
| CNEL: | 58     | 125    | 269    | 580    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.62         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 65.9 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.0 | 59.3 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.1          | 66.4    | 63.3        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 640    |
| CNEL: | 69     | 148    | 319    | 687    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.17         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.07       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.03       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.7        | 56.6      | 65.3 | 65.9 |
| Medium Trucks: | 59.7          | 58.2    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 59.8          | 58.4    | 49.3        | 50.6      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.2    | 63.2        | 58.3      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 134    | 288    | 621    |
| CNEL: | 67     | 144    | 310    | 668    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.46         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.78       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.74       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.2        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.9      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.5    | 64.5        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 757    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 19,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.12         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.12       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.07       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.2        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 286    | 617    |
| CNEL: | 66     | 143    | 308    | 663    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Bryan Av.      Number: 8141  
 Road Segment: e/o Eastwood      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 14,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,420 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.30        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.54       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.49       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.2        | 55.2      | 63.8 | 64.4 |
| Medium Trucks: | 58.3          | 56.8    | 50.4        | 48.9      | 57.3 | 57.6 |
| Heavy Trucks:  | 58.3          | 56.9    | 47.9        | 49.1      | 57.5 | 57.6 |
| Vehicle Noise: | 66.5          | 64.7    | 61.7        | 56.9      | 65.4 | 65.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 50     | 107    | 230    | 496    |
| CNEL: | 53     | 115    | 248    | 533    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Canyon View Av.      Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 7,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 720 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.84        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.07       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.03       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.0          | 59.1    | 57.3        | 51.3      | 59.9 | 60.5 |
| Medium Trucks: | 54.5          | 53.0    | 46.7        | 45.1      | 53.6 | 53.8 |
| Heavy Trucks:  | 55.0          | 53.5    | 44.5        | 45.7      | 54.1 | 54.2 |
| Vehicle Noise: | 62.7          | 60.9    | 57.9        | 53.1      | 61.6 | 62.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 60     | 128    | 277    |
| CNEL: | 30     | 64     | 138    | 297    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.      Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,820 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.68         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.56       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.51       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.9        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.2    | 65.2        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 391    | 842    |
| CNEL: | 91     | 195    | 420    | 906    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Chapman Ave./Santiago Cyn.      Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 41,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,110 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.32         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.92       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.88       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 233    | 502    | 1,082  |
| CNEL: | 116    | 251    | 540    | 1,164  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Creek Rd.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 4,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 440 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 99.544                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 99.504                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -4.43        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -21.66       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -25.62       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 54.1          | 52.2    | 50.4        | 44.4      | 53.0 | 53.6 |
| Medium Trucks: | 48.3          | 46.8    | 40.4        | 38.9      | 47.3 | 47.6 |
| Heavy Trucks:  | 50.2          | 48.7    | 39.7        | 41.0      | 49.3 | 49.4 |
| Vehicle Noise: | 56.3          | 54.6    | 51.2        | 46.8      | 55.3 | 55.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 10     | 23     | 49     | 105    |
| CNEL: | 11     | 24     | 52     | 112    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,550 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.86         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.37       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.33       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.0 | 61.3 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.2        | 52.5      | 60.8 | 61.0 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 191    | 411    | 886    |
| CNEL: | 95     | 206    | 443    | 954    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 28,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,840 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.33         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.86       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.5          | 61.0    | 54.6        | 53.1      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.7          | 68.9    | 66.1        | 61.1      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 95     | 205    | 442    | 952    |
| CNEL: | 103    | 221    | 476    | 1,025  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.45         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.79       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.75       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 243    | 524    | 1,129  |
| CNEL: | 122    | 262    | 564    | 1,216  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 32,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.88         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.36       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.32       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.1      | 68.7 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.1 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.3    | 52.2        | 53.5      | 61.8 | 62.0 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 223    | 480    | 1,035  |
| CNEL: | 111    | 240    | 517    | 1,115  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: s/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.90         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.34       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.29       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.1        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.0          | 63.5    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.6        | 63.7      | 72.2 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 141    | 304    | 655    | 1,412  |
| CNEL: | 152    | 328    | 706    | 1,520  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.6      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 660    | 1,423  |
| CNEL: | 153    | 330    | 711    | 1,532  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: s/o I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 56,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.35         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.89       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.5      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.7    | 54.7        | 56.0      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 326    | 702    | 1,512  |
| CNEL: | 163    | 351    | 756    | 1,629  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: n/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 51,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.94         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.25       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.6      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,421  |
| CNEL: | 153    | 330    | 710    | 1,530  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w Walnut Av. and Deerfield Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.64       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.60       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 290    | 625    | 1,347  |
| CNEL: | 145    | 312    | 673    | 1,450  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w Deerfield Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 42,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,290 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.12         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.11       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.07       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.4        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 270    | 582    | 1,253  |
| CNEL: | 135    | 291    | 626    | 1,349  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w ICD and Warner Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 46,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.46         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.73       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.6 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 284    | 613    | 1,320  |
| CNEL: | 142    | 306    | 660    | 1,422  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w Warner Av. and Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,720 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.54         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.70       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.66       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.8        | 61.7      | 70.3 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.8        | 55.3      | 63.7 | 64.0 |
| Heavy Trucks:  | 64.4          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.2    | 68.3        | 63.3      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 134    | 288    | 620    | 1,335  |
| CNEL: | 144    | 310    | 668    | 1,438  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 51,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 5,150 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.92         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.32       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.28       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.5    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.7        | 63.7      | 72.3 | 72.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 305    | 657    | 1,415  |
| CNEL: | 152    | 328    | 707    | 1,524  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w Alton Pkwy. and Main St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 52,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,210 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.97         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.27       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.3        | 55.6      | 63.9 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 307    | 662    | 1,426  |
| CNEL: | 154    | 331    | 713    | 1,536  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w Main St. and San Leandro      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  |  |  | NOISE MODEL INPUTS                            |  |        |                       |       |        |
|--|--|--|--|---|--|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  |  |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |                       |       |        |
| Average Daily Traffic (Adt): 52,600 vehicles |  |  |  | Autos: 15                                     |  |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  |  |  | Medium Trucks (2 Axles): 15                   |  |        |                       |       |        |
| Peak Hour Volume: 5,260 vehicles             |  |  |  | Heavy Trucks (3+ Axles): 15                   |  |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  |  |  | <b>Vehicle Mix</b>                            |  |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  |  |  |   |  |        |                       |       |        |
| <b>Site Data</b>                             |  |  |  | VehicleType                                   |  | Day    | Evening               | Night | Daily  |
|  |  |  |  | Autos:  |  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
|  |  |  |  | Medium Trucks:                                |  | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
|  |  |  |  | Heavy Trucks:                                 |  | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
|  |  |  |  | <b>Noise Source Elevations (in feet)</b>      |  |        |                       |       |        |
| Barrier Height: 0.0 feet                     |  |  |  | Autos:  |  | 2.000  | Grade Adjustment: 0.0 |       |        |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  |  |  | Medium Trucks:                                |  | 4.000  |                       |       |        |
| Centerline Dist. to Barrier: 100.0 feet      |  |  |  | Heavy Trucks:                                 |  | 8.006  |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  |  |  |   |  |        |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  |  |  | <b>Lane Equivalent Distance (in feet)</b>     |  |        |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  |  |  |   |  |        |                       |       |        |
| Pad Elevation: 0.0 feet                      |  |  |  | Autos:  |  | 92.547 |                       |       |        |
| Road Elevation: 0.0 feet                     |  |  |  | Medium Trucks:                                |  | 92.504 |                       |       |        |
| Road Grade: 0.0%                             |  |  |  | Heavy Trucks:                                 |  | 92.547 |                       |       |        |
| Left View: -90.0 degrees                     |  |  |  |   |  |        |                       |       |        |
| Right View: 90.0 degrees                     |  |  |  |   |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.01         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.23       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.18       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.4 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 309    | 666    | 1,435  |
| CNEL: | 155    | 333    | 718    | 1,546  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Culver Dr.      Number: 8141  
 Road Segment: b/w San Leandro and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 58,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.49         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.75       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.71       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.8        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.5 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 333    | 717    | 1,544  |
| CNEL: | 166    | 358    | 772    | 1,663  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.871 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.830 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.871 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.54        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.78       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.74       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.0          | 61.1    | 59.4        | 53.3      | 61.9 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.0          | 55.6    | 46.6        | 47.8      | 56.2 | 56.3 |
| Vehicle Noise: | 64.7          | 63.0    | 59.9        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 177    | 381    |
| CNEL: | 41     | 88     | 190    | 409    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,160 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.18        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.42       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.37       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 48.0      | 56.4 | 56.7 |
| Heavy Trucks:  | 57.4          | 56.0    | 47.0        | 48.2      | 56.6 | 56.7 |
| Vehicle Noise: | 65.6          | 63.8    | 60.9        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 201    | 433    |
| CNEL: | 47     | 100    | 216    | 466    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: E. Yale Lp.      Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.22        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.45       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.41       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.3        | 54.3      | 62.9 | 63.5 |
| Medium Trucks: | 57.4          | 55.9    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.4          | 56.0    | 46.9        | 48.2      | 56.5 | 56.7 |
| Vehicle Noise: | 65.5          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real      Number: 8141  
 Road Segment: e/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 16,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.21        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.45       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.40       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.6          | 62.7    | 60.9        | 54.9      | 63.5 | 64.1 |
| Medium Trucks: | 58.2          | 56.7    | 50.3        | 48.7      | 57.2 | 57.4 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.1        | 49.4      | 57.7 | 57.9 |
| Vehicle Noise: | 66.3          | 64.5    | 61.5        | 56.7      | 65.3 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 104    | 224    | 483    |
| CNEL: | 52     | 112    | 241    | 519    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real      Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.19       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 76     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Camino Real N.      Number: 8141  
 Road Segment: s/o Bryan Ave.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA        |                | NOISE MODEL INPUTS                            |        |                       |       |        |
|---------------------------------|----------------|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>             |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt):    | 7,800 vehicles | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage:           | 10%            | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume:               | 780 vehicles   | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed:                  | 55 mph         | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance:         | 52 feet        |   |        |                       |       |        |
| <b>Site Data</b>                |                | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Barrier Height:</b> 0.0 feet |                | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Type (0-Wall, 1-Berm):  | 0.0            | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Centerline Dist. to Barrier:    | 100.0 feet     | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Observer:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Barrier Distance to Observer:   | 0.0 feet       | Autos:  | 2.000  | Grade Adjustment: 0.0 |       |        |
| Observer Height (Above Pad):    | 5.0 feet       | Medium Trucks:                                | 4.000  |                       |       |        |
| Pad Elevation:                  | 0.0 feet       | Heavy Trucks:                                 | 8.006  |                       |       |        |
| Road Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Grade:                     | 0.0%           | Autos:  | 96.607 |                       |       |        |
| Left View:                      | -90.0 degrees  | Medium Trucks:                                | 96.566 |                       |       |        |
| Right View:                     | 90.0 degrees   | Heavy Trucks:                                 | 96.608 |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.90        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.10       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.3          | 60.4    | 58.6        | 52.6      | 61.2 | 61.8 |
| Medium Trucks: | 55.7          | 54.2    | 47.8        | 46.3      | 54.7 | 55.0 |
| Heavy Trucks:  | 55.7          | 54.3    | 45.2        | 46.5      | 54.9 | 55.0 |
| Vehicle Noise: | 63.9          | 62.1    | 59.1        | 54.3      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 72     | 154    | 332    |
| CNEL: | 36     | 77     | 166    | 358    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Portola Pkwy./S. Margarita Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.4 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.8    | 49.8        | 51.1      | 59.4 | 59.5 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.8      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 144    | 311    | 670    |
| CNEL: | 72     | 155    | 334    | 720    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: s/o Portola Pkwy./S. Margarita Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 42,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.50         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.74       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.69       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.2          | 68.3    | 66.5        | 60.4      | 69.1 | 69.7 |
| Medium Trucks: | 63.5          | 62.0    | 55.7        | 54.1      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.9 |
| Vehicle Noise: | 71.7          | 70.0    | 67.0        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 517    | 1,114  |
| CNEL: | 120    | 258    | 556    | 1,198  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 714    |
| CNEL: | 77     | 165    | 356    | 768    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Toledo Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 43,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,380 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.21         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.02       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.98       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.1        | 55.4      | 63.7 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 643    | 1,386  |
| CNEL: | 149    | 322    | 693    | 1,492  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.24         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.99       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.95       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.1        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 646    | 1,392  |
| CNEL: | 150    | 323    | 696    | 1,499  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 46,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,600 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.43         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.81       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.77       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.2        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.7        | 63.8      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 143    | 308    | 664    | 1,432  |
| CNEL: | 154    | 332    | 716    | 1,542  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 84.853 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 84.806 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 84.853 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.79         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.45       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.40       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.6        | 62.5      | 71.2 | 71.8 |
| Medium Trucks: | 65.5          | 64.0    | 57.6        | 56.1      | 64.5 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.7        | 56.0      | 64.3 | 64.4 |
| Vehicle Noise: | 73.7          | 72.0    | 69.1        | 64.1      | 72.7 | 73.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 151    | 326    | 702    | 1,513  |
| CNEL: | 163    | 351    | 757    | 1,630  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)    Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.    Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps    Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 65,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 106 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 84.853                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 84.806                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 84.853                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.93         | -3.55    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.31       | -3.55    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.27       | -3.55    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.4          | 71.5    | 69.7        | 63.7      | 72.3 | 72.9 |
| Medium Trucks: | 66.6          | 65.1    | 58.8        | 57.2      | 65.7 | 65.9 |
| Heavy Trucks:  | 66.3          | 64.9    | 55.9        | 57.1      | 65.5 | 65.6 |
| Vehicle Noise: | 74.9          | 73.1    | 70.2        | 65.3      | 73.8 | 74.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 180    | 388    | 837    | 1,803  |
| CNEL: | 194    | 418    | 901    | 1,942  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Avenida Carlota      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,470 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.68         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.56       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.51       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 247    | 531    | 1,145  |
| CNEL: | 123    | 265    | 572    | 1,231  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 29,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.89         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.35       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.7    | 64.9        | 58.8      | 67.5 | 68.1 |
| Medium Trucks: | 61.9          | 60.4    | 54.1        | 52.5      | 61.0 | 61.2 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 70.1          | 68.4    | 65.4        | 60.5      | 69.1 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 87     | 187    | 404    | 870    |
| CNEL: | 94     | 202    | 434    | 936    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 33,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,300 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.36         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.88       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.83       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.4        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.4          | 60.9    | 54.5        | 53.0      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.4          | 61.0    | 52.0        | 53.2      | 61.6 | 61.7 |
| Vehicle Noise: | 70.6          | 68.8    | 65.9        | 61.0      | 69.6 | 70.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 94     | 201    | 434    | 935    |
| CNEL: | 101    | 217    | 467    | 1,006  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 32,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.26         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.98       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.94       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.3        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.3          | 60.8    | 54.4        | 52.9      | 61.3 | 61.6 |
| Heavy Trucks:  | 62.3          | 60.9    | 51.9        | 53.1      | 61.5 | 61.6 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.5 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 427    | 920    |
| CNEL: | 99     | 213    | 459    | 990    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o Aliso Creek Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.43         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.81       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.77       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.5          | 60.0    | 53.6        | 52.1      | 60.5 | 60.8 |
| Heavy Trucks:  | 61.5          | 60.1    | 51.0        | 52.3      | 60.7 | 60.8 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 376    | 810    |
| CNEL: | 87     | 188    | 404    | 871    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: n/o SR-73      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 30,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,010 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.96         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.28       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.23       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.6          | 66.7    | 65.0        | 58.9      | 67.5 | 68.1 |
| Medium Trucks: | 62.0          | 60.5    | 54.1        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.6        | 52.8      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.4    | 65.5        | 60.6      | 69.2 | 69.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 189    | 408    | 879    |
| CNEL: | 95     | 204    | 439    | 946    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: El Toro Rd.      Number: 8141  
 Road Segment: s/o SR-73      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.10         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.14       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.10       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.9          | 63.0    | 61.2        | 55.2      | 63.8 | 64.4 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.5 | 57.7 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.4        | 49.7      | 58.0 | 58.2 |
| Vehicle Noise: | 66.6          | 64.8    | 61.8        | 57.0      | 65.6 | 66.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 109    | 235    | 506    |
| CNEL: | 54     | 117    | 252    | 544    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.      Number: 8141  
 Road Segment: b/w Gateway Bl. and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 870 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.43        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.67       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.62       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.8          | 60.9    | 59.1        | 53.0      | 61.7 | 62.3 |
| Medium Trucks: | 56.1          | 54.6    | 48.3        | 46.7      | 55.2 | 55.4 |
| Heavy Trucks:  | 56.2          | 54.8    | 45.7        | 47.0      | 55.3 | 55.5 |
| Vehicle Noise: | 64.3          | 62.6    | 59.6        | 54.7      | 63.3 | 63.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 77     | 166    | 358    |
| CNEL: | 38     | 83     | 179    | 385    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fortune Dr.      Number: 8141  
 Road Segment: b/w Pacifica and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.2          | 54.7    | 48.4        | 46.8      | 55.3 | 55.5 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.8        | 47.1      | 55.4 | 55.6 |
| Vehicle Noise: | 64.4          | 62.7    | 59.7        | 54.8      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 78     | 168    | 363    |
| CNEL: | 39     | 84     | 181    | 391    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--------------------------------|----------------|---|-----|---------|-------|-------|--|
| Highway Data                   |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt):   | 7,100 vehicles | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume:              | 710 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed:                 | 55 mph         | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                      |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier:   | 100.0 feet     | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation:                 | 0.0 feet       | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                             |     |         |       |       |  |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.31        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.55       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.50       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.2        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.3          | 53.8    | 47.4        | 45.9      | 54.3 | 54.5 |
| Heavy Trucks:  | 55.3          | 53.9    | 44.8        | 46.1      | 54.4 | 54.6 |
| Vehicle Noise: | 63.5          | 61.7    | 58.7        | 53.9      | 62.4 | 62.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 31     | 67     | 145    | 312    |
| CNEL: | 34     | 72     | 156    | 336    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Gateway Bl.      Number: 8141  
 Road Segment: w/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 280 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -8.35        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -25.59       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -29.55       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 57.8          | 55.9    | 54.2        | 48.1      | 56.7 | 57.3 |
| Medium Trucks: | 51.2          | 49.7    | 43.4        | 41.8      | 50.3 | 50.5 |
| Heavy Trucks:  | 51.3          | 49.8    | 40.8        | 42.0      | 50.4 | 50.5 |
| Vehicle Noise: | 59.4          | 57.7    | 54.7        | 49.8      | 58.4 | 58.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 17     | 36     | 78     | 168    |
| CNEL: | 18     | 39     | 84     | 181    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenn Ranch Rd.      Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 29,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,900 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.22         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.02       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.98       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 68.7          | 67.0    | 63.9        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 701    |
| CNEL: | 75     | 162    | 349    | 753    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Glenwood Dr./Indian Creek      Number: 8141  
 Road Segment: w/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.73        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.97       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.92       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.1          | 61.2    | 59.4        | 53.4      | 62.0 | 62.6 |
| Medium Trucks: | 56.6          | 55.1    | 48.8        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.1          | 55.6    | 46.6        | 47.9      | 56.2 | 56.3 |
| Vehicle Noise: | 64.8          | 63.0    | 60.0        | 55.2      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 178    | 383    |
| CNEL: | 41     | 89     | 191    | 411    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Handy Creek Rd.      Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 210 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 99.865                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 99.825                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -8.22        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -25.46       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -29.41       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.5          | 50.6    | 48.8        | 42.8      | 51.4 | 52.0 |
| Medium Trucks: | 46.5          | 44.9    | 38.6        | 37.0      | 45.5 | 45.7 |
| Heavy Trucks:  | 47.8          | 46.4    | 37.3        | 38.6      | 46.9 | 47.0 |
| Vehicle Noise: | 54.5          | 52.8    | 49.5        | 44.9      | 53.5 | 53.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 17     | 37     | 79     |
| CNEL: | 8      | 18     | 39     | 85     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Number: 8141  
 Road Segment: s/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 99.544 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 99.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 99.544 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -0.25        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -17.49       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -21.45       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.6        | 48.5      | 57.2 | 57.8 |
| Medium Trucks: | 52.5          | 51.0    | 44.6        | 43.1      | 51.5 | 51.8 |
| Heavy Trucks:  | 54.3          | 52.9    | 43.9        | 45.1      | 53.5 | 53.6 |
| Vehicle Noise: | 60.5          | 58.8    | 55.3        | 50.9      | 59.5 | 59.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 43     | 92     | 199    |
| CNEL: | 21     | 46     | 98     | 212    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Number: 8141  
 Road Segment: n/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.0          | 56.5    | 47.5        | 48.8      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.4    | 61.4        | 56.5      | 65.1 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 218    | 470    |
| CNEL: | 51     | 109    | 235    | 505    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Harvard Av.      Number: 8141  
 Road Segment: b/w Edinger Av. And Paseo Westpark      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 15,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,530 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.98        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.17       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.2          | 63.3    | 61.5        | 55.5      | 64.1 | 64.7 |
| Medium Trucks: | 58.6          | 57.1    | 50.7        | 49.2      | 57.6 | 57.9 |
| Heavy Trucks:  | 58.6          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 66.8          | 65.0    | 62.1        | 57.2      | 65.8 | 66.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 52     | 112    | 242    | 521    |
| CNEL: | 56     | 121    | 260    | 560    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Hubble      Number: 8141  
 Road Segment: n/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 2,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 200 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -9.81        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.05       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.01       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.4          | 54.5    | 52.7        | 46.7      | 55.3 | 55.9 |
| Medium Trucks: | 49.8          | 48.3    | 41.9        | 40.3      | 48.8 | 49.0 |
| Heavy Trucks:  | 49.8          | 48.4    | 39.3        | 40.6      | 48.9 | 49.1 |
| Vehicle Noise: | 58.0          | 56.2    | 53.2        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: b/w Newport and Red Hill      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 55,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,550 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.62         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.62       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.57       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.7          | 63.2    | 56.8        | 55.3      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.2        | 55.5      | 63.8 | 64.0 |
| Vehicle Noise: | 72.9          | 71.1    | 68.1        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 285    | 614    | 1,322  |
| CNEL: | 142    | 306    | 660    | 1,423  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: b/w Red Hill and Browning      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 54,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,410 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 4.92         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -12.31       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -16.27       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.3          | 61.8    | 55.4        | 53.9      | 62.3 | 62.6 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.3        | 54.5      | 62.9 | 63.0 |
| Vehicle Noise: | 71.4          | 69.7    | 66.6        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,062  |
| CNEL: | 114    | 246    | 530    | 1,141  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 48,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,830 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.02         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.22       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.18       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 64.1          | 62.7    | 53.6        | 54.9      | 63.2 | 63.4 |
| Vehicle Noise: | 72.3          | 70.5    | 67.5        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 260    | 559    | 1,205  |
| CNEL: | 130    | 279    | 602    | 1,297  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 42,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 4,220 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.43         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.81       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.76       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.4        | 60.4      | 69.0 | 69.6 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 71.7          | 69.9    | 67.0        | 62.1      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 110    | 237    | 511    | 1,102  |
| CNEL: | 119    | 255    | 550    | 1,185  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 45,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.37         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.87       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.82       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.3 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 280    | 604    | 1,301  |
| CNEL: | 140    | 302    | 650    | 1,401  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: b/w SR-261 Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 44,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.25         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.94       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.5        | 61.4      | 70.1 | 70.7 |
| Medium Trucks: | 64.4          | 62.9    | 56.5        | 55.0      | 63.4 | 63.7 |
| Heavy Trucks:  | 64.1          | 62.6    | 53.6        | 54.9      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.9    | 68.0        | 63.0      | 71.6 | 72.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 128    | 275    | 593    | 1,278  |
| CNEL: | 138    | 297    | 639    | 1,377  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o SR-261 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 45,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.38         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.86       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.81       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.6        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.3 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 281    | 605    | 1,303  |
| CNEL: | 140    | 302    | 651    | 1,403  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 38,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,890 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.70         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.50       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 253    | 545    | 1,174  |
| CNEL: | 126    | 272    | 587    | 1,264  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 39,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,940 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.48       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 60.9      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.4    | 67.5        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,184  |
| CNEL: | 128    | 275    | 592    | 1,275  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Yale Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 42,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.4        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.5        | 54.7      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.9        | 62.9      | 71.5 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 125    | 270    | 581    | 1,251  |
| CNEL: | 135    | 290    | 625    | 1,347  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 37,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,770 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.56         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.68       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.8        | 60.7      | 69.4 | 70.0 |
| Medium Trucks: | 63.7          | 62.2    | 55.8        | 54.3      | 62.7 | 63.0 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.9          | 70.2    | 67.3        | 62.4      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 248    | 534    | 1,150  |
| CNEL: | 124    | 267    | 575    | 1,238  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,660 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.43         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.80       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.76       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.7        | 60.6      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.8 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 243    | 523    | 1,127  |
| CNEL: | 121    | 262    | 563    | 1,214  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Groveland      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,680 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.46         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.78       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.74       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.7        | 54.2      | 62.6 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.8          | 70.1    | 67.2        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 525    | 1,131  |
| CNEL: | 122    | 262    | 565    | 1,218  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 39,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,940 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.48       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.44       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 60.9      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.4    | 67.5        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,184  |
| CNEL: | 128    | 275    | 592    | 1,275  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o SR-133 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 43,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,310 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.14         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.3      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.5    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 271    | 583    | 1,257  |
| CNEL: | 135    | 292    | 628    | 1,354  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 37,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,720 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.69       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.4          | 68.5    | 66.7        | 60.7      | 69.3 | 69.9 |
| Medium Trucks: | 63.6          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.9          | 70.1    | 67.2        | 62.3      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 114    | 245    | 529    | 1,139  |
| CNEL: | 123    | 264    | 570    | 1,227  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.42       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.37       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.1        | 61.0      | 69.6 | 70.2 |
| Medium Trucks: | 64.0          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.2        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.2          | 70.4    | 67.6        | 62.6      | 71.2 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 120    | 258    | 555    | 1,196  |
| CNEL: | 129    | 277    | 598    | 1,288  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o A St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,050 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.87         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.36       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.32       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.0          | 62.5    | 56.1        | 54.6      | 63.1 | 63.3 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.2        | 54.5      | 62.8 | 63.0 |
| Vehicle Noise: | 72.3          | 70.5    | 67.6        | 62.7      | 71.2 | 71.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 121    | 260    | 560    | 1,206  |
| CNEL: | 130    | 280    | 603    | 1,299  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Z St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 46,400 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 4,640 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.46         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.73       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.7        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.6          | 63.1    | 56.7        | 55.2      | 63.6 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.8        | 55.1      | 63.4 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.2        | 63.3      | 71.8 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 132    | 284    | 613    | 1,320  |
| CNEL: | 142    | 306    | 660    | 1,422  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Z St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 48,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.61         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.63       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.58       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.9        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 72.0 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 291    | 627    | 1,350  |
| CNEL: | 145    | 313    | 675    | 1,454  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o LQ St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 45,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,560 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.85       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.3          | 69.4    | 67.6        | 61.6      | 70.2 | 70.8 |
| Medium Trucks: | 64.5          | 63.0    | 56.7        | 55.1      | 63.6 | 63.8 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.8          | 71.0    | 68.1        | 63.2      | 71.7 | 72.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 130    | 281    | 606    | 1,305  |
| CNEL: | 141    | 303    | 652    | 1,405  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o LQ St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,940 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.74         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.50       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.46       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 68.0        | 61.9      | 70.5 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 63.9 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.1    | 54.1        | 55.3      | 63.7 | 63.8 |
| Vehicle Noise: | 73.1          | 71.4    | 68.5        | 63.5      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 297    | 639    | 1,376  |
| CNEL: | 148    | 319    | 688    | 1,483  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 51,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.94         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.25       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 70.0    | 68.2        | 62.1      | 70.8 | 71.4 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.7      | 64.1 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.3    | 54.3        | 55.6      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.6    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 306    | 659    | 1,421  |
| CNEL: | 153    | 330    | 710    | 1,530  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 42,400 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 4,240 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.07         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.17       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.12       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.0          | 69.1    | 67.3        | 61.3      | 69.9 | 70.5 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.9          | 62.5    | 53.4        | 54.7      | 63.0 | 63.2 |
| Vehicle Noise: | 72.5          | 70.7    | 67.8        | 62.9      | 71.4 | 71.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 124    | 268    | 577    | 1,243  |
| CNEL: | 134    | 288    | 621    | 1,339  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD/Edinger Av.      Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,720 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.52         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.72       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.67       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.1        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.0        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 177    | 382    | 822    |
| CNEL: | 88     | 191    | 410    | 884    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD/Edinger Av.      Number: 8141  
 Road Segment: e/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 58.9      | 67.6 | 68.2 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 410    | 883    |
| CNEL: | 95     | 205    | 441    | 950    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: e/o Hearthstone Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.1      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.6    | 65.7        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 97     | 208    | 449    | 966    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.10         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.14       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.10       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.0          | 67.1    | 65.3        | 59.3      | 67.9 | 68.5 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 61.9          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 70.5          | 68.7    | 65.8        | 60.9      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 92     | 198    | 426    | 918    |
| CNEL: | 99     | 213    | 459    | 989    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Yale Av. And Fontaine Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,880 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.39         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.3          | 67.4    | 65.6        | 59.6      | 68.2 | 68.8 |
| Medium Trucks: | 62.5          | 61.0    | 54.7        | 53.1      | 61.6 | 61.8 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.7 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 96     | 207    | 446    | 961    |
| CNEL: | 103    | 223    | 480    | 1,035  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 41,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,150 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.98         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.26       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.21       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.3        | 54.6      | 62.9 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,226  |
| CNEL: | 132    | 284    | 613    | 1,320  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.97         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.27       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.23       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.3        | 52.6      | 60.9 | 61.1 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 418    | 900    |
| CNEL: | 97     | 209    | 450    | 969    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: e/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.30        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.49       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 63.9        | 57.9      | 66.5 | 67.1 |
| Medium Trucks: | 60.8          | 59.3    | 53.0        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 160    | 344    | 741    |
| CNEL: | 80     | 172    | 370    | 798    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Laguna Canyon Rd. and Discovery      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.67        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.91       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.87       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 68.7          | 66.9    | 64.1        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 325    | 700    |
| CNEL: | 75     | 162    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: w/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.26         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.93       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.4      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.6          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 375    | 808    |
| CNEL: | 87     | 187    | 404    | 870    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Barranca Pkwy. and Gateway Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.53         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.71       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.3        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 841    |
| CNEL: | 91     | 195    | 421    | 906    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Gateway Bl.and Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 20,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,090 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.00         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.24       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.19       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.3        | 51.7      | 60.2 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 167    | 360    | 776    |
| CNEL: | 84     | 180    | 388    | 836    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Alton Pkwy.and Spectrum      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 34,800 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,480 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.22         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.02       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.98       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.5        | 60.4      | 69.0 | 69.6 |
| Medium Trucks: | 63.4          | 61.8    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.0          | 61.6    | 52.6        | 53.8      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.8    | 67.0        | 62.0      | 70.6 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 235    | 506    | 1,090  |
| CNEL: | 117    | 253    | 545    | 1,174  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Pacifica and Enterprise Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,500 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.24         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.00       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.95       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.1          | 68.2    | 66.5        | 60.4      | 69.0 | 69.7 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.1          | 61.6    | 52.6        | 53.8      | 62.2 | 62.3 |
| Vehicle Noise: | 71.6          | 69.9    | 67.0        | 62.0      | 70.6 | 71.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 236    | 508    | 1,094  |
| CNEL: | 118    | 254    | 547    | 1,178  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Enterprise and I-405 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,280 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.21       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.17       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.7      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.8          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.6    | 68.8        | 63.8      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 310    | 668    | 1,439  |
| CNEL: | 155    | 334    | 719    | 1,550  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Research Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,340 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | -2.28        | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -19.52       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -23.47       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.2          | 69.3    | 67.5        | 61.4      | 70.1 | 70.7 |
| Medium Trucks: | 64.3          | 62.7    | 56.4        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 63.6          | 62.2    | 53.1        | 54.4      | 62.8 | 62.9 |
| Vehicle Noise: | 72.6          | 70.8    | 68.0        | 63.0      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 272    | 586    | 1,262  |
| CNEL: | 136    | 293    | 631    | 1,360  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Research Dr. and Hubble      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.57         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.67       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.63       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.6    | 64.8        | 58.8      | 67.4 | 68.0 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.4          | 60.0    | 50.9        | 52.2      | 60.5 | 60.7 |
| Vehicle Noise: | 70.0          | 68.2    | 65.3        | 60.4      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 85     | 182    | 393    | 846    |
| CNEL: | 91     | 196    | 423    | 911    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Hubble and Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.28         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.96       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.91       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.5 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.7          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 810    |
| CNEL: | 87     | 188    | 405    | 872    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Bake Pkwy. and Muller      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,120 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.06         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.18       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.13       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.2      | 66.9 | 67.5 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.4        | 51.7      | 60.0 | 60.2 |
| Vehicle Noise: | 69.4          | 67.7    | 64.8        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 169    | 364    | 783    |
| CNEL: | 84     | 182    | 392    | 843    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: b/w Muller and Tesla      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,060 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.06        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.30       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.26       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.4 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 60.8          | 59.3    | 50.3        | 51.5      | 59.9 | 60.0 |
| Vehicle Noise: | 69.3          | 67.6    | 64.7        | 59.7      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 166    | 357    | 768    |
| CNEL: | 83     | 178    | 384    | 827    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: ICD      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,100 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,010 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -0.17        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.41       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.1        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.1        | 51.6      | 60.0 | 60.2 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 69.2          | 67.4    | 64.6        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 756    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: n/o Chapman/Santiago Cyn.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 21,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.46         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.78       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.73       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 324    | 698    |
| CNEL: | 75     | 162    | 349    | 751    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Chapman Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 15,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,530 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.98        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.21       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.17       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.7          | 63.8    | 62.0        | 56.0      | 64.6 | 65.2 |
| Medium Trucks: | 59.1          | 57.6    | 51.2        | 49.7      | 58.1 | 58.4 |
| Heavy Trucks:  | 59.1          | 57.7    | 48.6        | 49.9      | 58.3 | 58.4 |
| Vehicle Noise: | 67.3          | 65.5    | 62.5        | 57.7      | 66.2 | 66.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 56     | 121    | 260    | 560    |
| CNEL: | 60     | 130    | 280    | 603    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Canyon View Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.9          | 66.0    | 64.2        | 58.2      | 66.8 | 67.4 |
| Medium Trucks: | 61.3          | 59.8    | 53.4        | 51.9      | 60.3 | 60.6 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.5          | 67.7    | 64.7        | 59.9      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 79     | 169    | 365    | 785    |
| CNEL: | 84     | 182    | 392    | 845    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: n/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,730 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.54         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.70       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.66       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 178    | 382    | 824    |
| CNEL: | 89     | 191    | 411    | 886    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Tustin Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 27,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,740 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.55         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.68       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.64       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.5      | 67.1 | 67.7 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 61.6          | 60.2    | 51.2        | 52.4      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.8 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 178    | 383    | 826    |
| CNEL: | 89     | 191    | 412    | 889    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,760 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.59         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.65       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.61       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.6        | 58.5      | 67.1 | 67.8 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.7          | 60.2    | 51.2        | 52.5      | 60.8 | 60.9 |
| Vehicle Noise: | 69.8          | 68.1    | 65.1        | 60.2      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 179    | 385    | 830    |
| CNEL: | 89     | 192    | 414    | 893    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 37,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,750 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.19         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -15.05       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -19.00       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.6          | 73.7    | 72.0        | 65.9      | 74.5 | 75.1 |
| Medium Trucks: | 68.7          | 67.2    | 60.9        | 59.3      | 67.8 | 68.0 |
| Heavy Trucks:  | 68.1          | 66.7    | 57.6        | 58.9      | 67.2 | 67.3 |
| Vehicle Noise: | 77.0          | 75.3    | 72.4        | 67.4      | 76.0 | 76.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 251    | 540    | 1,163  | 2,506  |
| CNEL: | 270    | 582    | 1,254  | 2,701  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 39,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,920 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 2.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -14.85       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -18.81       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 75.8          | 73.9    | 72.2        | 66.1      | 74.7 | 75.3 |
| Medium Trucks: | 68.9          | 67.4    | 61.0        | 59.5      | 68.0 | 68.2 |
| Heavy Trucks:  | 68.3          | 66.8    | 57.8        | 59.1      | 67.4 | 67.5 |
| Vehicle Noise: | 77.2          | 75.4    | 72.6        | 67.6      | 76.2 | 76.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 258    | 556    | 1,198  | 2,581  |
| CNEL: | 278    | 599    | 1,291  | 2,782  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: b/w El Camino Real and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 61,500 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 6,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.34         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.90       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.85       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.1        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 69.9 | 70.2 |
| Heavy Trucks:  | 70.2          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.1 | 78.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 348    | 751    | 1,617  | 3,485  |
| CNEL: | 376    | 809    | 1,744  | 3,757  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: n/o Michelle Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 60,400 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 6,040 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.26         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.98       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.93       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.7          | 75.8    | 74.0        | 68.0      | 76.6 | 77.2 |
| Medium Trucks: | 70.8          | 69.3    | 62.9        | 61.4      | 69.8 | 70.1 |
| Heavy Trucks:  | 70.1          | 68.7    | 59.7        | 60.9      | 69.3 | 69.4 |
| Vehicle Noise: | 79.1          | 77.3    | 74.5        | 69.5      | 78.1 | 78.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 344    | 742    | 1,598  | 3,443  |
| CNEL: | 371    | 800    | 1,723  | 3,712  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Michelle Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 58,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 5,860 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.48         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.76       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.4          | 70.5    | 68.7        | 62.7      | 71.3 | 71.9 |
| Medium Trucks: | 65.6          | 64.1    | 57.7        | 56.2      | 64.7 | 64.9 |
| Heavy Trucks:  | 65.3          | 63.9    | 54.8        | 56.1      | 64.4 | 64.6 |
| Vehicle Noise: | 73.9          | 72.1    | 69.2        | 64.3      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 154    | 332    | 716    | 1,542  |
| CNEL: | 166    | 358    | 771    | 1,661  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: n/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 97,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 9,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 6.36         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -10.88       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -14.83       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.8          | 77.9    | 76.1        | 70.1      | 78.7 | 79.3 |
| Medium Trucks: | 72.9          | 71.4    | 65.0        | 63.5      | 71.9 | 72.2 |
| Heavy Trucks:  | 72.2          | 70.8    | 61.8        | 63.0      | 71.4 | 71.5 |
| Vehicle Noise: | 81.2          | 79.4    | 76.6        | 71.6      | 80.2 | 80.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 475    | 1,024  | 2,205  | 4,751  |
| CNEL: | 512    | 1,103  | 2,377  | 5,122  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jamboree Rd.      Number: 8141  
 Road Segment: s/o Edinger Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 86,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 8,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 5.83         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -11.41       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -15.37       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 79.3          | 77.4    | 75.6        | 69.5      | 78.2 | 78.8 |
| Medium Trucks: | 72.4          | 70.8    | 64.5        | 62.9      | 71.4 | 71.6 |
| Heavy Trucks:  | 71.7          | 70.3    | 61.3        | 62.5      | 70.9 | 71.0 |
| Vehicle Noise: | 80.7          | 78.9    | 76.1        | 71.1      | 79.6 | 80.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 438    | 943    | 2,032  | 4,378  |
| CNEL: | 472    | 1,017  | 2,191  | 4,720  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: e/o SR-241 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 390 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -6.91        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -24.15       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -28.11       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.3          | 57.4    | 55.6        | 49.6      | 58.2 | 58.8 |
| Medium Trucks: | 52.7          | 51.2    | 44.8        | 43.2      | 51.7 | 51.9 |
| Heavy Trucks:  | 52.7          | 51.3    | 42.2        | 43.5      | 51.8 | 52.0 |
| Vehicle Noise: | 60.9          | 59.1    | 56.1        | 51.3      | 59.8 | 60.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 21     | 45     | 97     | 209    |
| CNEL: | 23     | 49     | 105    | 225    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,100 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.41        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.65       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.60       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.1        | 54.1      | 62.7 | 63.3 |
| Medium Trucks: | 57.2          | 55.7    | 49.3        | 47.8      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.8    | 46.7        | 48.0      | 56.3 | 56.5 |
| Vehicle Noise: | 65.4          | 63.6    | 60.6        | 55.8      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 194    | 418    |
| CNEL: | 45     | 97     | 209    | 450    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 34,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.12       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.08       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.4        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 62.9          | 61.5    | 52.5        | 53.7      | 62.1 | 62.2 |
| Vehicle Noise: | 71.5          | 69.7    | 66.9        | 61.9      | 70.5 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 107    | 231    | 498    | 1,073  |
| CNEL: | 116    | 249    | 536    | 1,156  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 35,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,590 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.35         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.89       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.84       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.5          | 62.0    | 55.6        | 54.1      | 62.5 | 62.8 |
| Heavy Trucks:  | 63.2          | 61.7    | 52.7        | 54.0      | 62.3 | 62.4 |
| Vehicle Noise: | 71.7          | 70.0    | 67.1        | 62.1      | 70.7 | 71.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 111    | 240    | 516    | 1,113  |
| CNEL: | 120    | 258    | 556    | 1,198  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 47,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,700 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.52         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.72       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.67       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.4          | 69.5    | 67.8        | 61.7      | 70.3 | 70.9 |
| Medium Trucks: | 64.7          | 63.1    | 56.8        | 55.2      | 63.7 | 63.9 |
| Heavy Trucks:  | 64.3          | 62.9    | 53.9        | 55.1      | 63.5 | 63.6 |
| Vehicle Noise: | 72.9          | 71.1    | 68.3        | 63.3      | 71.9 | 72.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 133    | 287    | 618    | 1,332  |
| CNEL: | 143    | 309    | 666    | 1,434  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 51,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 5,160 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.93         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.31       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.27       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.8          | 69.9    | 68.2        | 62.1      | 70.7 | 71.3 |
| Medium Trucks: | 65.1          | 63.6    | 57.2        | 55.6      | 64.1 | 64.3 |
| Heavy Trucks:  | 64.7          | 63.3    | 54.3        | 55.5      | 63.9 | 64.0 |
| Vehicle Noise: | 73.3          | 71.5    | 68.7        | 63.7      | 72.3 | 72.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 142    | 305    | 658    | 1,417  |
| CNEL: | 153    | 329    | 708    | 1,526  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: b/w Roosevelt and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 69,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,970 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.23         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.01       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.96       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.1          | 71.2    | 69.5        | 63.4      | 72.0 | 72.6 |
| Medium Trucks: | 66.4          | 64.9    | 58.5        | 57.0      | 65.4 | 65.6 |
| Heavy Trucks:  | 66.0          | 64.6    | 55.6        | 56.8      | 65.2 | 65.3 |
| Vehicle Noise: | 74.6          | 72.8    | 70.0        | 65.0      | 73.6 | 74.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 173    | 373    | 804    | 1,732  |
| CNEL: | 186    | 402    | 866    | 1,865  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: s/o Walnut Av./I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 50,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.82         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.42       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.38       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.1        | 62.0      | 70.6 | 71.2 |
| Medium Trucks: | 65.0          | 63.4    | 57.1        | 55.5      | 64.0 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.2    | 54.2        | 55.4      | 63.8 | 63.9 |
| Vehicle Noise: | 73.2          | 71.4    | 68.6        | 63.6      | 72.2 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 300    | 647    | 1,393  |
| CNEL: | 150    | 323    | 696    | 1,500  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: s/o Irvine Center Drive      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.75         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.49       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.45       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.7          | 69.8    | 68.0        | 61.9      | 70.6 | 71.2 |
| Medium Trucks: | 64.9          | 63.4    | 57.0        | 55.5      | 63.9 | 64.2 |
| Heavy Trucks:  | 64.6          | 63.1    | 54.1        | 55.4      | 63.7 | 63.8 |
| Vehicle Noise: | 73.1          | 71.4    | 68.5        | 63.5      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 138    | 297    | 640    | 1,378  |
| CNEL: | 148    | 320    | 689    | 1,485  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.64       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.60       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.5          | 69.6    | 67.8        | 61.8      | 70.4 | 71.0 |
| Medium Trucks: | 64.7          | 63.2    | 56.9        | 55.3      | 63.8 | 64.0 |
| Heavy Trucks:  | 64.4          | 63.0    | 54.0        | 55.2      | 63.6 | 63.7 |
| Vehicle Noise: | 73.0          | 71.2    | 68.3        | 63.4      | 71.9 | 72.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 135    | 290    | 625    | 1,347  |
| CNEL: | 145    | 312    | 673    | 1,450  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeffrey Rd.      Number: 8141  
 Road Segment: b/w Quailcreek and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 57,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.43         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.81       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.77       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.3          | 70.4    | 68.7        | 62.6      | 71.2 | 71.8 |
| Medium Trucks: | 65.6          | 64.1    | 57.7        | 56.1      | 64.6 | 64.8 |
| Heavy Trucks:  | 65.2          | 63.8    | 54.8        | 56.0      | 64.4 | 64.5 |
| Vehicle Noise: | 73.8          | 72.0    | 69.2        | 64.2      | 72.8 | 73.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 153    | 330    | 710    | 1,530  |
| CNEL: | 165    | 355    | 765    | 1,648  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,300 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 730 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 96.607                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 96.566                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.19        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.43       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.38       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.0          | 60.1    | 58.3        | 52.3      | 60.9 | 61.5 |
| Medium Trucks: | 55.4          | 53.9    | 47.5        | 46.0      | 54.4 | 54.7 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.6          | 61.8    | 58.9        | 54.0      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 318    |
| CNEL: | 34     | 74     | 159    | 342    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 11,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.65        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.89       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.85       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.2          | 61.3    | 59.5        | 53.4      | 62.1 | 62.7 |
| Medium Trucks: | 56.7          | 55.2    | 48.8        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 57.1          | 55.7    | 46.7        | 47.9      | 56.3 | 56.4 |
| Vehicle Noise: | 64.8          | 63.1    | 60.1        | 55.3      | 63.8 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 83     | 180    | 387    |
| CNEL: | 42     | 90     | 193    | 416    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Number: 8141  
 Road Segment: e/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 16,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,690 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.13        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.32       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.7          | 62.8    | 61.0        | 55.0      | 63.6 | 64.2 |
| Medium Trucks: | 58.2          | 56.7    | 50.4        | 48.8      | 57.3 | 57.5 |
| Heavy Trucks:  | 58.7          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 66.4          | 64.6    | 61.6        | 56.8      | 65.3 | 65.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 49     | 105    | 227    | 489    |
| CNEL: | 53     | 113    | 244    | 525    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 15,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,500 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.65        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.89       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.84       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.4      | 63.1 | 63.7 |
| Medium Trucks: | 57.7          | 56.2    | 49.9        | 48.3      | 56.8 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.9          | 64.1    | 61.1        | 56.3      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 210    | 452    |
| CNEL: | 49     | 105    | 225    | 485    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.      Number: 8141  
 Road Segment: w/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,780 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  |   |     |         |       |       |
|  |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  |   |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                             |  |   |     |         |       |       |
| Left View: -90.0 degrees                     |  | Autos: 93.723                                 |     |         |       |       |
| Right View: 90.0 degrees                     |  | Medium Trucks: 93.680                         |     |         |       |       |
|  |  | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.03         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.21       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.16       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.2        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.4 | 59.7 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 68.5          | 66.8    | 63.7        | 59.0      | 67.5 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 147    | 316    | 681    |
| CNEL: | 73     | 158    | 340    | 732    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeromino Rd.      Number: 8141  
 Road Segment: e/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Jeronimo Rd.      Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.64         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.55       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.4          | 64.5    | 62.8        | 56.7      | 65.3 | 66.0 |
| Medium Trucks: | 60.0          | 58.5    | 52.1        | 50.6      | 59.1 | 59.3 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.1          | 66.4    | 63.3        | 58.6      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 298    | 642    |
| CNEL: | 69     | 148    | 320    | 689    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: b/w ICD and Discovery      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>   |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):  | 6,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:   | 680 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:  | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:   | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>  |                | VehicleType                                   | Day | Evening | Night | Daily |
| <div><b>Barrier Height:</b> 0.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 100.0 feet</div> <div>Centerline Dist. to Observer: 100.0 feet</div> <div>Barrier Distance to Observer: 0.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 0.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div> <div>Left View: -90.0 degrees</div> <div>Right View: 90.0 degrees</div> <td colspan="5">Autos: 77.5% 12.9% 9.6% 97.42%</td> |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|   |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|   |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|   |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|   |                | Autos: 2.000                                  |     |         |       |       |
|   |                | Medium Trucks: 4.000                          |     |         |       |       |
|   |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|   |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|   |                | Autos: 96.607                                 |     |         |       |       |
|   |                | Medium Trucks: 96.566                         |     |         |       |       |
|   |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.50        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.7          | 59.8    | 58.0        | 52.0      | 60.6 | 61.2 |
| Medium Trucks: | 55.1          | 53.6    | 47.2        | 45.7      | 54.1 | 54.4 |
| Heavy Trucks:  | 55.1          | 53.7    | 44.7        | 45.9      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.5    | 58.6        | 53.7      | 62.2 | 62.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 65     | 141    | 303    |
| CNEL: | 33     | 70     | 151    | 326    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: b/w Waterworks Wy. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 690 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.43        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.67       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.8          | 59.9    | 58.1        | 52.0      | 60.7 | 61.3 |
| Medium Trucks: | 55.1          | 53.6    | 47.3        | 45.7      | 54.2 | 54.4 |
| Heavy Trucks:  | 55.2          | 53.8    | 44.7        | 46.0      | 54.3 | 54.4 |
| Vehicle Noise: | 63.3          | 61.6    | 58.6        | 53.7      | 62.3 | 62.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 31     | 66     | 142    | 306    |
| CNEL: | 33     | 71     | 153    | 330    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 610 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.97        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.2          | 59.3    | 57.6        | 51.5      | 60.1 | 60.7 |
| Medium Trucks: | 54.6          | 53.1    | 46.7        | 45.2      | 53.7 | 53.9 |
| Heavy Trucks:  | 54.6          | 53.2    | 44.2        | 45.4      | 53.8 | 53.9 |
| Vehicle Noise: | 62.8          | 61.0    | 58.1        | 53.2      | 61.8 | 62.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 28     | 61     | 131    | 282    |
| CNEL: | 30     | 65     | 141    | 304    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 9,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 950 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.05        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.24       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.1          | 61.2    | 59.5        | 53.4      | 62.0 | 62.6 |
| Medium Trucks: | 56.5          | 55.0    | 48.7        | 47.1      | 55.6 | 55.8 |
| Heavy Trucks:  | 56.6          | 55.1    | 46.1        | 47.4      | 55.7 | 55.8 |
| Vehicle Noise: | 64.7          | 63.0    | 60.0        | 55.1      | 63.7 | 64.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 82     | 176    | 379    |
| CNEL: | 41     | 88     | 189    | 408    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: n/o Quail Hill Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 760 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.01        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.21       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.6          | 54.1    | 47.7        | 46.1      | 54.6 | 54.8 |
| Heavy Trucks:  | 55.6          | 54.2    | 45.1        | 46.4      | 54.7 | 54.9 |
| Vehicle Noise: | 63.8          | 62.0    | 59.0        | 54.2      | 62.7 | 63.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 70     | 152    | 327    |
| CNEL: | 35     | 76     | 163    | 352    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: s/o Quail Hill Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 12,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.03        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.27       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.22       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.4      | 63.1 | 63.7 |
| Medium Trucks: | 57.5          | 56.0    | 49.7        | 48.1      | 56.6 | 56.8 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.1        | 48.4      | 56.7 | 56.9 |
| Vehicle Noise: | 65.7          | 64.0    | 61.0        | 56.1      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 95     | 206    | 443    |
| CNEL: | 48     | 103    | 221    | 477    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Canyon Rd.      Number: 8141  
 Road Segment: n/o SR-73 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 34,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,440 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.54         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.70       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.65       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.3 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 193    | 415    | 894    |
| CNEL: | 96     | 207    | 446    | 962    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.      Number: 8141  
 Road Segment: s/o Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.43         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.81       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.76       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.8        | 51.0      | 59.4 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 134    | 288    | 621    |
| CNEL: | 67     | 144    | 310    | 667    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Laguna Hills Dr.      Number: 8141  
 Road Segment: w/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,070 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.05         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.19       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.15       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.5    | 65.6        | 60.7      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 192    | 414    | 891    |
| CNEL: | 96     | 207    | 445    | 959    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Rd.      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 5,800 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 580 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.23        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.46       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.42       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.3          | 53.4    | 51.6        | 45.6      | 54.2 | 54.8 |
| Medium Trucks: | 49.5          | 48.0    | 41.6        | 40.1      | 48.5 | 48.8 |
| Heavy Trucks:  | 51.4          | 49.9    | 40.9        | 42.2      | 50.5 | 50.6 |
| Vehicle Noise: | 57.5          | 55.8    | 52.4        | 48.0      | 56.5 | 56.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 27     | 58     | 126    |
| CNEL: | 13     | 29     | 62     | 134    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.14         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.09       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.05       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.6          | 64.9    | 61.8        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 237    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o SR-241 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,500 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,750 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.98         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.25       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.21       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.8          | 64.9    | 63.1        | 57.1      | 65.7 | 66.3 |
| Medium Trucks: | 60.4          | 58.8    | 52.5        | 50.9      | 59.4 | 59.6 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.3        | 51.6      | 59.9 | 60.0 |
| Vehicle Noise: | 68.5          | 66.7    | 63.7        | 58.9      | 67.5 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 68     | 146    | 314    | 676    |
| CNEL: | 73     | 157    | 337    | 727    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o Rancho Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.20         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.04       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -17.99       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.6 | 60.9 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 68.0    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 176    | 379    | 815    |
| CNEL: | 88     | 189    | 407    | 876    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.17         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.07       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.03       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.7      | 61.1 | 61.2 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 376    | 811    |
| CNEL: | 87     | 188    | 404    | 871    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 41,000 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.31         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.93       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.89       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.2      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.8    | 55.5        | 53.9      | 62.4 | 62.6 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.5 | 62.7 |
| Vehicle Noise: | 71.5          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 233    | 502    | 1,081  |
| CNEL: | 116    | 250    | 540    | 1,163  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 39,500 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,950 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.14         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.1        | 60.1      | 68.7 | 69.3 |
| Medium Trucks: | 63.2          | 61.7    | 55.3        | 53.8      | 62.2 | 62.5 |
| Heavy Trucks:  | 63.2          | 61.8    | 52.8        | 54.0      | 62.4 | 62.5 |
| Vehicle Noise: | 71.4          | 69.6    | 66.7        | 61.8      | 70.3 | 70.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 105    | 227    | 489    | 1,054  |
| CNEL: | 113    | 244    | 526    | 1,134  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 40,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.24         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.00       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.95       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.9          | 68.0    | 66.2        | 60.2      | 68.8 | 69.4 |
| Medium Trucks: | 63.3          | 61.8    | 55.4        | 53.9      | 62.3 | 62.6 |
| Heavy Trucks:  | 63.3          | 61.9    | 52.9        | 54.1      | 62.5 | 62.6 |
| Vehicle Noise: | 71.5          | 69.7    | 66.8        | 61.9      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 107    | 231    | 497    | 1,070  |
| CNEL: | 115    | 248    | 534    | 1,151  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.13         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.06       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 419    | 903    |
| CNEL: | 97     | 209    | 451    | 971    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 47,400 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,740 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 64.0          | 62.5    | 56.1        | 54.6      | 63.0 | 63.3 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.2          | 70.4    | 67.5        | 62.6      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 119    | 256    | 553    | 1,190  |
| CNEL: | 128    | 276    | 594    | 1,281  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: b/w Rockfield Bl. and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 76,500 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 7,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 6.01         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -11.22       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -15.18       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.7          | 70.8    | 69.0        | 63.0      | 71.6 | 72.2 |
| Medium Trucks: | 66.1          | 64.6    | 58.2        | 56.6      | 65.1 | 65.3 |
| Heavy Trucks:  | 66.1          | 64.7    | 55.6        | 56.9      | 65.2 | 65.4 |
| Vehicle Noise: | 74.3          | 72.5    | 69.5        | 64.7      | 73.2 | 73.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 164    | 353    | 760    | 1,638  |
| CNEL: | 176    | 380    | 818    | 1,762  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o Avenida Carlota/I-5 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.40         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.84       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.80       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.8          | 68.0    | 65.1        | 60.2      | 68.7 | 69.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 82     | 178    | 383    | 824    |
| CNEL: | 89     | 191    | 412    | 888    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,270 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | -2.16        | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -19.40       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -23.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.7          | 63.8    | 62.1        | 56.0      | 64.6 | 65.3 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.3 |
| Heavy Trucks:  | 58.7          | 57.2    | 48.2        | 49.4      | 57.8 | 57.9 |
| Vehicle Noise: | 67.2          | 65.5    | 62.6        | 57.6      | 66.2 | 66.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 56     | 120    | 258    | 557    |
| CNEL: | 60     | 129    | 278    | 599    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: b/w Scientific Way and Tesla      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.18         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.05       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -21.01       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.3          | 59.8    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.3 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 370    | 798    |
| CNEL: | 86     | 185    | 399    | 859    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.55         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.69       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.65       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.5          | 66.6    | 64.8        | 58.7      | 67.4 | 68.0 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.4          | 59.9    | 50.9        | 52.2      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.2    | 65.3        | 60.3      | 68.9 | 69.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 182    | 392    | 844    |
| CNEL: | 91     | 196    | 422    | 909    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Lake Forest Dr.      Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 22,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,240 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.68         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.56       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.51       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.9          | 65.0    | 63.2        | 57.1      | 65.8 | 66.4 |
| Medium Trucks: | 60.3          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.3          | 58.9    | 49.8        | 51.1      | 59.4 | 59.6 |
| Vehicle Noise: | 68.4          | 66.7    | 63.7        | 58.9      | 67.4 | 67.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 67     | 145    | 312    | 672    |
| CNEL: | 72     | 156    | 335    | 723    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 22,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,260 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.13         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.11       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.9          | 64.0    | 62.3        | 56.2      | 64.8 | 65.4 |
| Medium Trucks: | 59.5          | 58.0    | 51.6        | 50.1      | 58.5 | 58.8 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.5        | 50.7      | 59.1 | 59.2 |
| Vehicle Noise: | 67.6          | 65.9    | 62.8        | 58.1      | 66.6 | 67.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 59     | 128    | 275    | 593    |
| CNEL: | 64     | 137    | 296    | 638    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,810 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.66         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.57       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.53       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.7        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.8 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 390    | 840    |
| CNEL: | 90     | 195    | 419    | 904    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: e/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 41,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 4,120 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.33         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.91       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.87       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 52.9        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.8        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 108    | 234    | 503    | 1,084  |
| CNEL: | 117    | 251    | 541    | 1,166  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: w/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 36,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.18         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.06       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.02       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.5          | 60.0    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.5    | 51.5        | 52.8      | 61.1 | 61.2 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 377    | 812    |
| CNEL: | 87     | 188    | 405    | 873    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: s/o Rockfield Bl./Fordview St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 3,100 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.09         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.15       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.10       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.0      | 67.7 | 68.3 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.7        | 53.0      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 96     | 208    | 448    | 965    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Los Alisos Bl.      Number: 8141  
 Road Segment: b/w Avenida Carlota and Paseo de Valencia      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 25,100 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,510 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.06       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.02       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.2        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.4        | 51.8      | 60.3 | 60.5 |
| Heavy Trucks:  | 61.3          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.4 | 68.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 78     | 168    | 362    | 779    |
| CNEL: | 84     | 181    | 389    | 838    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: w/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.02         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.22       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.18       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.5        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.7        | 51.2      | 59.6 | 59.9 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.0    | 64.1        | 59.2      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 152    | 328    | 707    |
| CNEL: | 76     | 164    | 353    | 761    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: e/o O St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.46         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.78       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.74       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.2        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.9      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.5    | 64.5        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 757    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: w/o D St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.1 |
| Medium Trucks: | 60.9          | 59.4    | 53.1        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.4    | 64.4        | 59.5      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 346    | 746    |
| CNEL: | 80     | 173    | 372    | 802    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: e/o D St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.91         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.33       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.29       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.1      | 59.5 | 59.8 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.1        | 51.3      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 64.0        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 323    | 695    |
| CNEL: | 75     | 161    | 347    | 748    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Number: 8141  
 Road Segment: w/o Great Park Blvd East      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 23,900 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,390 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.96         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.23       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.6          | 59.1    | 50.1        | 51.4      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 67.0    | 64.0        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 701    |
| CNEL: | 75     | 163    | 350    | 754    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Number: 8141  
 Road Segment: w/o B St      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,100 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,710 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.51         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 164    | 354    | 763    |
| CNEL: | 82     | 177    | 381    | 820    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy      Number: 8141  
 Road Segment: e/o B St      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.27         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.96       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.92       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.8        | 56.7      | 65.4 | 66.0 |
| Medium Trucks: | 59.8          | 58.3    | 52.0        | 50.4      | 58.9 | 59.1 |
| Heavy Trucks:  | 59.9          | 58.5    | 49.4        | 50.7      | 59.0 | 59.2 |
| Vehicle Noise: | 68.0          | 66.3    | 63.3        | 58.4      | 67.0 | 67.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 63     | 136    | 293    | 631    |
| CNEL: | 68     | 146    | 315    | 679    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: n/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.50         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.74       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.1          | 58.6    | 52.2        | 50.7      | 59.1 | 59.4 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.5    | 63.6        | 58.7      | 67.2 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 65     | 141    | 303    | 654    |
| CNEL: | 70     | 151    | 326    | 703    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 13,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.46        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.65       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.7          | 62.8    | 61.1        | 55.0      | 63.6 | 64.2 |
| Medium Trucks: | 58.1          | 56.6    | 50.2        | 48.7      | 57.2 | 57.4 |
| Heavy Trucks:  | 58.2          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 66.3          | 64.5    | 61.6        | 56.7      | 65.3 | 65.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 104    | 225    | 484    |
| CNEL: | 52     | 112    | 242    | 521    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: n/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.83         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.36       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.6 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 319    | 688    |
| CNEL: | 74     | 159    | 343    | 740    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Marine Wy.      Number: 8141  
 Road Segment: s/o Rockfield Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 23,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.96         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.28       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.23       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.5        | 57.4      | 66.1 | 66.7 |
| Medium Trucks: | 60.5          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 60.6          | 59.1    | 50.1        | 51.4      | 59.7 | 59.8 |
| Vehicle Noise: | 68.7          | 67.0    | 64.0        | 59.1      | 67.7 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 151    | 326    | 701    |
| CNEL: | 75     | 163    | 350    | 754    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Meridian      Number: 8141  
 Road Segment: n/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 100 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -12.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -30.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -34.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 53.4          | 51.5    | 49.7        | 43.6      | 52.3 | 52.9 |
| Medium Trucks: | 46.8          | 45.2    | 38.9        | 37.3      | 45.8 | 46.0 |
| Heavy Trucks:  | 46.8          | 45.4    | 36.3        | 37.6      | 45.9 | 46.1 |
| Vehicle Noise: | 54.9          | 53.2    | 50.2        | 45.4      | 53.9 | 54.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 18     | 39     | 85     |
| CNEL: | 9      | 20     | 42     | 91     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Modjeska      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 35 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 20 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | 0.60         | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -16.64       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -20.59       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.1          | 57.2    | 55.4        | 49.4      | 58.0 | 58.6 |
| Medium Trucks: | 53.3          | 51.8    | 45.5        | 43.9      | 52.4 | 52.6 |
| Heavy Trucks:  | 55.2          | 53.8    | 44.7        | 46.0      | 54.3 | 54.5 |
| Vehicle Noise: | 61.3          | 59.6    | 56.2        | 51.8      | 60.3 | 60.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 23     | 49     | 105    | 226    |
| CNEL: | 24     | 52     | 112    | 242    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: e/o (s/o) Lake Forest      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,140 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 195    | 420    | 905    |
| CNEL: | 97     | 210    | 452    | 973    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: e/o (s/o) Ridge Route      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 38,800 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,880 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.07         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.17       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.13       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.2 |
| Medium Trucks: | 63.1          | 61.6    | 55.2        | 53.7      | 62.2 | 62.4 |
| Heavy Trucks:  | 63.1          | 61.7    | 52.7        | 53.9      | 62.3 | 62.4 |
| Vehicle Noise: | 71.3          | 69.5    | 66.6        | 61.7      | 70.3 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 104    | 224    | 483    | 1,042  |
| CNEL: | 112    | 241    | 520    | 1,121  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: w/o (n/o) El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 43,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.60         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.64       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.59       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.4    | 66.6        | 60.5      | 69.2 | 69.8 |
| Medium Trucks: | 63.6          | 62.1    | 55.8        | 54.2      | 62.7 | 62.9 |
| Heavy Trucks:  | 63.7          | 62.3    | 53.2        | 54.5      | 62.8 | 63.0 |
| Vehicle Noise: | 71.8          | 70.1    | 67.1        | 62.2      | 70.8 | 71.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 113    | 244    | 525    | 1,131  |
| CNEL: | 122    | 262    | 565    | 1,217  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: e/o (s/o) El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 44,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,480 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.69         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.55       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.50       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.3          | 68.5    | 66.7        | 60.6      | 69.3 | 69.9 |
| Medium Trucks: | 63.7          | 62.2    | 55.9        | 54.3      | 62.8 | 63.0 |
| Heavy Trucks:  | 63.8          | 62.3    | 53.3        | 54.6      | 62.9 | 63.0 |
| Vehicle Noise: | 71.9          | 70.2    | 67.2        | 62.3      | 70.9 | 71.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 115    | 247    | 532    | 1,146  |
| CNEL: | 123    | 266    | 572    | 1,233  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: b/w Glenwood/Indian Creek and Laguna Hills      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |  |        |         |                       |        |
|--|--|--|--|--------|---------|-----------------------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |  |        |         |                       |        |
| Average Daily Traffic (Adt): 41,400 vehicles |  | Autos: 15                              |  |        |         |                       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |  |        |         |                       |        |
| Peak Hour Volume: 4,140 vehicles             |  | Heavy Trucks (3+ Axles): 15            |  |        |         |                       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |  |        |         |                       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            |  | Day    | Evening | Night                 | Daily  |
| Site Data                                    |  | Autos:                                 |  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         |  | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          |  | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |  |        |         |                       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 |  | 2.000  |         |                       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         |  | 4.000  |         |                       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          |  | 8.006  |         | Grade Adjustment: 0.0 |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |  |        |         |                       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 |  | 89.850 |         |                       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         |  | 89.805 |         |                       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          |  | 89.850 |         |                       |        |
| Right View: 90.0 degrees                     |  |  |  |        |         |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.35         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.89       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.85       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.0          | 68.1    | 66.3        | 60.3      | 68.9 | 69.5 |
| Medium Trucks: | 63.4          | 61.9    | 55.5        | 54.0      | 62.4 | 62.7 |
| Heavy Trucks:  | 63.4          | 62.0    | 53.0        | 54.2      | 62.6 | 62.7 |
| Vehicle Noise: | 71.6          | 69.8    | 66.9        | 62.0      | 70.5 | 71.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 109    | 234    | 505    | 1,088  |
| CNEL: | 117    | 252    | 543    | 1,170  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: s/o Laguna Hills Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 30,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 3,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.99         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.25       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.20       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.0        | 58.9      | 67.6 | 68.2 |
| Medium Trucks: | 62.0          | 60.5    | 54.2        | 52.6      | 61.1 | 61.3 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.3 |
| Vehicle Noise: | 70.2          | 68.5    | 65.5        | 60.6      | 69.2 | 69.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 88     | 190    | 410    | 883    |
| CNEL: | 95     | 205    | 441    | 950    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Moulton Pkwy.      Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,100 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.34         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.89       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.85       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.4          | 60.0    | 51.0        | 52.2      | 60.6 | 60.7 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 371    | 800    |
| CNEL: | 86     | 185    | 399    | 860    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 16,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,660 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.62        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.86       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.82       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.6          | 63.7    | 61.9        | 55.8      | 64.5 | 65.1 |
| Medium Trucks: | 59.0          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.0          | 57.6    | 48.5        | 49.8      | 58.1 | 58.3 |
| Vehicle Noise: | 67.1          | 65.4    | 62.4        | 57.6      | 66.1 | 66.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 119    | 255    | 550    |
| CNEL: | 59     | 127    | 275    | 592    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,700 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,970 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.54         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.70       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.66       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.7        | 55.6      | 64.2 | 64.9 |
| Medium Trucks: | 58.9          | 57.4    | 51.0        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.3          | 57.9    | 48.9        | 50.1      | 58.5 | 58.6 |
| Vehicle Noise: | 67.0          | 65.3    | 62.2        | 57.5      | 66.0 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 117    | 251    | 542    |
| CNEL: | 58     | 125    | 270    | 582    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 26,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,670 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.86         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.38       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.34       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 56.9      | 65.6 | 66.2 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.2        | 51.4      | 59.8 | 59.9 |
| Vehicle Noise: | 68.4          | 66.6    | 63.6        | 58.8      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 143    | 308    | 663    |
| CNEL: | 71     | 154    | 331    | 713    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.87         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.37       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.32       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.8    | 63.0        | 57.0      | 65.6 | 66.2 |
| Medium Trucks: | 60.2          | 58.7    | 52.4        | 50.8      | 59.3 | 59.5 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.4          | 66.6    | 63.6        | 58.8      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 143    | 309    | 665    |
| CNEL: | 71     | 154    | 332    | 714    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 28,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,880 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.01       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.3        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.6          | 59.0    | 52.7        | 51.1      | 59.6 | 59.8 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 68.7          | 66.9    | 63.9        | 59.1      | 67.7 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 70     | 150    | 324    | 698    |
| CNEL: | 75     | 161    | 348    | 749    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: s/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 24,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,420 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.43         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.81       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.76       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.4      | 58.8 | 59.1 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.8        | 51.0      | 59.4 | 59.5 |
| Vehicle Noise: | 67.9          | 66.2    | 63.1        | 58.3      | 66.9 | 67.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 134    | 288    | 621    |
| CNEL: | 67     | 144    | 310    | 667    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Muirlands Bl.      Number: 8141  
 Road Segment: e/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,990 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.58         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.61       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.9          | 57.4    | 51.1        | 49.5      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 57.9    | 48.9        | 50.2      | 58.5 | 58.6 |
| Vehicle Noise: | 67.1          | 65.3    | 62.3        | 57.5      | 66.0 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 117    | 253    | 545    |
| CNEL: | 59     | 126    | 272    | 586    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Oak Cyn./Laguna Cyn. Rd.      Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.80        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.04       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.99       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.1        | 46.0      | 54.6 | 55.2 |
| Medium Trucks: | 49.9          | 48.4    | 42.1        | 40.5      | 49.0 | 49.2 |
| Heavy Trucks:  | 51.8          | 50.4    | 41.3        | 42.6      | 50.9 | 51.1 |
| Vehicle Noise: | 57.9          | 56.2    | 52.8        | 48.4      | 56.9 | 57.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 29     | 62     | 134    |
| CNEL: | 14     | 31     | 67     | 144    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Orchard Hills/PA 1 Loop      Number: 8141  
 Road Segment: n/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,900 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 690 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -2.47        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -19.71       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -23.67       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 56.0          | 54.1    | 52.4        | 46.3      | 54.9 | 55.6 |
| Medium Trucks: | 50.3          | 48.7    | 42.4        | 40.8      | 49.3 | 49.5 |
| Heavy Trucks:  | 52.1          | 50.7    | 41.7        | 42.9      | 51.3 | 51.4 |
| Vehicle Noise: | 58.3          | 56.5    | 53.1        | 48.7      | 57.3 | 57.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 14     | 30     | 66     | 141    |
| CNEL: | 15     | 33     | 70     | 151    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica      Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 10,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,060 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.57        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.81       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.76       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.6          | 61.7    | 60.0        | 53.9      | 62.5 | 63.1 |
| Medium Trucks: | 57.0          | 55.5    | 49.1        | 47.6      | 56.1 | 56.3 |
| Heavy Trucks:  | 57.0          | 55.6    | 46.6        | 47.8      | 56.2 | 56.3 |
| Vehicle Noise: | 65.2          | 63.4    | 60.5        | 55.6      | 64.2 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 88     | 189    | 408    |
| CNEL: | 44     | 95     | 204    | 439    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Pacifica      Number: 8141  
 Road Segment: w/o (n/o) Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 720 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.25        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.49       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.44       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.3          | 53.8    | 47.5        | 45.9      | 54.4 | 54.6 |
| Heavy Trucks:  | 55.4          | 53.9    | 44.9        | 46.2      | 54.5 | 54.6 |
| Vehicle Noise: | 63.5          | 61.8    | 58.8        | 53.9      | 62.5 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 68     | 146    | 315    |
| CNEL: | 34     | 73     | 157    | 339    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 36,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,630 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 3.19         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.05       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.00       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.0          | 66.1    | 64.3        | 58.3      | 66.9 | 67.5 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.1      | 60.6 | 60.8 |
| Heavy Trucks:  | 62.0          | 60.6    | 51.5        | 52.8      | 61.1 | 61.3 |
| Vehicle Noise: | 69.7          | 67.9    | 64.9        | 60.1      | 68.7 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 175    | 378    | 814    |
| CNEL: | 87     | 188    | 406    | 875    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Number: 8141  
 Road Segment: w/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 30,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,090 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.08         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.16       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.12       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.7          | 66.8    | 65.1        | 59.0      | 67.6 | 68.2 |
| Medium Trucks: | 62.1          | 60.6    | 54.3        | 52.7      | 61.2 | 61.4 |
| Heavy Trucks:  | 62.2          | 60.7    | 51.7        | 52.9      | 61.3 | 61.4 |
| Vehicle Noise: | 70.3          | 68.6    | 65.6        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 89     | 193    | 415    | 895    |
| CNEL: | 96     | 207    | 447    | 963    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Number: 8141  
 Road Segment: e/o Los Alisos Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 46,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,690 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.89         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.35       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.30       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.5          | 68.6    | 66.9        | 60.8      | 69.5 | 70.1 |
| Medium Trucks: | 63.9          | 62.4    | 56.1        | 54.5      | 63.0 | 63.2 |
| Heavy Trucks:  | 64.0          | 62.5    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.1          | 70.4    | 67.4        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,182  |
| CNEL: | 127    | 274    | 590    | 1,272  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Number: 8141  
 Road Segment: w/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 36,400 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,640 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.79         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.45       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.41       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.8        | 59.7      | 68.4 | 69.0 |
| Medium Trucks: | 62.8          | 61.3    | 55.0        | 53.4      | 61.9 | 62.1 |
| Heavy Trucks:  | 62.9          | 61.4    | 52.4        | 53.7      | 62.0 | 62.1 |
| Vehicle Noise: | 71.0          | 69.3    | 66.3        | 61.4      | 70.0 | 70.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 100    | 215    | 463    | 998    |
| CNEL: | 107    | 231    | 498    | 1,074  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Paseo de Valencia      Number: 8141  
 Road Segment: e/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 14,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.95        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.19       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.14       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.4          | 55.9    | 49.6        | 48.0      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.8          | 56.4    | 47.4        | 48.6      | 57.0 | 57.1 |
| Vehicle Noise: | 65.6          | 63.8    | 60.8        | 56.0      | 64.5 | 65.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 93     | 200    | 431    |
| CNEL: | 46     | 100    | 215    | 463    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Jamboree Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 15,800 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,580 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.42        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.66       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.62       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.4          | 62.5    | 60.7        | 54.7      | 63.3 | 63.9 |
| Medium Trucks: | 57.9          | 56.4    | 50.1        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 58.4          | 56.9    | 47.9        | 49.2      | 57.5 | 57.6 |
| Vehicle Noise: | 66.1          | 64.3    | 61.3        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 467    |
| CNEL: | 50     | 108    | 233    | 502    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o SR-261 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,650 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.21       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.3        | 59.2      | 67.8 | 68.4 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.4    | 51.4        | 52.6      | 61.0 | 61.1 |
| Vehicle Noise: | 70.4          | 68.6    | 65.8        | 60.8      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 196    | 422    | 909    |
| CNEL: | 98     | 211    | 454    | 979    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o SR-261 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 21,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -17.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.1          | 66.2    | 64.4        | 58.4      | 67.0 | 67.6 |
| Medium Trucks: | 61.3          | 59.8    | 53.5        | 51.9      | 60.4 | 60.6 |
| Heavy Trucks:  | 61.0          | 59.6    | 50.6        | 51.8      | 60.2 | 60.3 |
| Vehicle Noise: | 69.6          | 67.8    | 64.9        | 60.0      | 68.5 | 69.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 80     | 172    | 371    | 800    |
| CNEL: | 86     | 186    | 400    | 862    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,330 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.47         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.77       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.72       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.7        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.7        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.8        | 52.1      | 60.4 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 83     | 180    | 387    | 834    |
| CNEL: | 90     | 194    | 417    | 898    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,600 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.95         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.29       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.24       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.9          | 67.0    | 65.2        | 59.1      | 67.8 | 68.4 |
| Medium Trucks: | 62.1          | 60.6    | 54.2        | 52.7      | 61.1 | 61.4 |
| Heavy Trucks:  | 61.8          | 60.3    | 51.3        | 52.6      | 60.9 | 61.0 |
| Vehicle Noise: | 70.3          | 68.6    | 65.7        | 60.7      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 193    | 416    | 897    |
| CNEL: | 97     | 208    | 449    | 966    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,770 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.60         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.64       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.59       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.8          | 65.9    | 64.1        | 58.1      | 66.7 | 67.3 |
| Medium Trucks: | 61.2          | 59.7    | 53.3        | 51.8      | 60.2 | 60.5 |
| Heavy Trucks:  | 61.2          | 59.8    | 50.8        | 52.0      | 60.4 | 60.5 |
| Vehicle Noise: | 69.4          | 67.6    | 64.7        | 59.8      | 68.3 | 68.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 77     | 167    | 359    | 774    |
| CNEL: | 83     | 179    | 386    | 832    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Sand Canyon. Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.83         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.41       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.36       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.0          | 65.1    | 63.4        | 57.3      | 65.9 | 66.5 |
| Medium Trucks: | 60.4          | 58.9    | 52.5        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.4          | 59.0    | 50.0        | 51.2      | 59.6 | 59.7 |
| Vehicle Noise: | 68.6          | 66.8    | 63.9        | 59.0      | 67.6 | 68.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 148    | 319    | 688    |
| CNEL: | 74     | 159    | 343    | 740    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Ridge Valley      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 24,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,450 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.07         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.17       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.13       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.3          | 65.4    | 63.6        | 57.5      | 66.2 | 66.8 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.3    | 50.2        | 51.5      | 59.8 | 60.0 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 154    | 331    | 713    |
| CNEL: | 77     | 165    | 356    | 767    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Ridge Valley      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,540 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.23         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.01       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.97       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.7        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.8 | 60.1 |
| Heavy Trucks:  | 60.8          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 157    | 339    | 730    |
| CNEL: | 79     | 169    | 365    | 786    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: b/w Silverado and Portola Springs      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 27,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,710 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.51         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.73       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.69       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.7          | 65.8    | 64.0        | 58.0      | 66.6 | 67.2 |
| Medium Trucks: | 61.1          | 59.6    | 53.2        | 51.7      | 60.1 | 60.4 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.7        | 51.9      | 60.3 | 60.4 |
| Vehicle Noise: | 69.3          | 67.5    | 64.6        | 59.7      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 164    | 354    | 763    |
| CNEL: | 82     | 177    | 381    | 820    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Portola Springs      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.89         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.35       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.31       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.5          | 59.0    | 52.6        | 51.0      | 59.5 | 59.7 |
| Heavy Trucks:  | 60.5          | 59.1    | 50.0        | 51.3      | 59.6 | 59.8 |
| Vehicle Noise: | 68.7          | 66.9    | 63.9        | 59.1      | 67.6 | 68.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 69     | 149    | 322    | 693    |
| CNEL: | 75     | 161    | 346    | 746    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 460 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -5.78        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -23.02       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -26.98       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.0          | 57.1    | 55.4        | 49.3      | 57.9 | 58.5 |
| Medium Trucks: | 52.6          | 51.1    | 44.7        | 43.2      | 51.6 | 51.9 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.5        | 43.8      | 52.2 | 52.3 |
| Vehicle Noise: | 60.7          | 59.0    | 55.9        | 51.1      | 59.7 | 60.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 21     | 44     | 95     | 205    |
| CNEL: | 22     | 48     | 102    | 221    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,190 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.58         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.66       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.61       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.2          | 65.3    | 63.6        | 57.5      | 66.1 | 66.7 |
| Medium Trucks: | 60.6          | 59.1    | 52.8        | 51.2      | 59.7 | 59.9 |
| Heavy Trucks:  | 60.7          | 59.2    | 50.2        | 51.5      | 59.8 | 59.9 |
| Vehicle Noise: | 68.8          | 67.1    | 64.1        | 59.2      | 67.8 | 68.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 711    |
| CNEL: | 77     | 165    | 355    | 765    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 3,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.2        | 59.1      | 67.7 | 68.4 |
| Medium Trucks: | 62.2          | 60.7    | 54.4        | 52.8      | 61.3 | 61.5 |
| Heavy Trucks:  | 62.3          | 60.8    | 51.8        | 53.1      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.7    | 65.7        | 60.8      | 69.4 | 69.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 91     | 196    | 423    | 910    |
| CNEL: | 98     | 211    | 455    | 979    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: w/o Glenn Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 49,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 4,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.12         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.07       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.1        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.2 | 63.4 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.7        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.6    | 67.6        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,225  |
| CNEL: | 132    | 284    | 612    | 1,318  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: e/o Glenn Ranch Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 34,600 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 3,460 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.57         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.67       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.63       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.7        | 53.2      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.6          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.0    | 66.1        | 61.2      | 69.8 | 70.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 208    | 448    | 965    |
| CNEL: | 104    | 224    | 482    | 1,038  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy. East      Number: 8141  
 Road Segment: s/o SR-241 SB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 34,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,470 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.58         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.66       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.61       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.8        | 53.2      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.5      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.1    | 66.1        | 61.2      | 69.8 | 70.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 208    | 449    | 967    |
| CNEL: | 104    | 224    | 483    | 1,040  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy.      Number: 8141  
 Road Segment: s/o Rancho Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 59,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 5,970 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.94         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -12.30       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -16.26       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.6          | 69.7    | 67.9        | 61.9      | 70.5 | 71.1 |
| Medium Trucks: | 65.0          | 63.5    | 57.1        | 55.6      | 64.0 | 64.3 |
| Heavy Trucks:  | 65.0          | 63.6    | 54.6        | 55.8      | 64.2 | 64.3 |
| Vehicle Noise: | 73.2          | 71.4    | 68.5        | 63.6      | 72.1 | 72.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 139    | 299    | 644    | 1,388  |
| CNEL: | 149    | 322    | 693    | 1,493  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Pkwy./S. Margarita Pkwy.      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 50,000 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 5,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 4.17         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -13.07       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -17.03       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.8          | 68.9    | 67.2        | 61.1      | 69.7 | 70.3 |
| Medium Trucks: | 64.2          | 62.7    | 56.3        | 54.8      | 63.3 | 63.5 |
| Heavy Trucks:  | 64.2          | 62.8    | 53.8        | 55.0      | 63.4 | 63.5 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.4 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 266    | 573    | 1,233  |
| CNEL: | 133    | 286    | 616    | 1,327  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Portola Springs      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>   |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):  | 6,400 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:   | 640 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:  | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:   | 52 feet        |   |     |         |       |       |
| <b>Site Data</b>  |                | VehicleType                                   | Day | Evening | Night | Daily |
| <div><b>Barrier Height:</b> 0.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 100.0 feet</div> <div>Centerline Dist. to Observer: 100.0 feet</div> <div>Barrier Distance to Observer: 0.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 0.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div> <div>Left View: -90.0 degrees</div> <div>Right View: 90.0 degrees</div> <td colspan="5">Autos: 77.5% 12.9% 9.6% 97.42%</td> |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|   |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|   |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|   |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|   |                | Autos: 2.000                                  |     |         |       |       |
|   |                | Medium Trucks: 4.000                          |     |         |       |       |
|   |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|   |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|   |                | Autos: 96.607                                 |     |         |       |       |
|   |                | Medium Trucks: 96.566                         |     |         |       |       |
|   |                | Heavy Trucks: 96.608                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.76        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.00       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 54.8          | 53.3    | 46.9        | 45.4      | 53.9 | 54.1 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.4        | 45.6      | 54.0 | 54.1 |
| Vehicle Noise: | 63.0          | 61.2    | 58.3        | 53.4      | 62.0 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 135    | 291    |
| CNEL: | 31     | 68     | 145    | 313    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Quail Hill Pkwy.      Number: 8141  
 Road Segment: e/o Shady Canyon Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 19,600 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,960 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.10         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.14       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.6      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.3        | 50.5      | 58.9 | 59.0 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 285    | 614    |
| CNEL: | 66     | 142    | 307    | 661    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy. S      Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 10,200 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,020 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.32        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.56       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.52       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.5          | 60.6    | 58.8        | 52.8      | 61.4 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.2        | 46.6      | 55.1 | 55.3 |
| Heavy Trucks:  | 56.5          | 55.0    | 46.0        | 47.3      | 55.6 | 55.7 |
| Vehicle Noise: | 64.2          | 62.4    | 59.4        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 162    | 349    |
| CNEL: | 38     | 81     | 174    | 375    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 29,600 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,960 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 2.30         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -14.93       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -18.89       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.1          | 65.2    | 63.4        | 57.4      | 66.0 | 66.6 |
| Medium Trucks: | 60.7          | 59.2    | 52.8        | 51.3      | 59.7 | 60.0 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 68.8          | 67.1    | 64.0        | 59.2      | 67.8 | 68.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 71     | 153    | 330    | 710    |
| CNEL: | 76     | 164    | 354    | 763    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rancho Pkwy.      Number: 8141  
 Road Segment: e/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Number: 8141  
 Road Segment: e/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                             |     |         |       |       |
|--|----------------|--|-----|---------|-------|-------|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b>  |     |         |       |       |
| Average Daily Traffic (Adt):   | 8,900 vehicles | Autos: 15                                      |     |         |       |       |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                    |     |         |       |       |
| Peak Hour Volume:  | 890 vehicles   | Heavy Trucks (3+ Axles): 15                    |     |         |       |       |
| Vehicle Speed:   | 55 mph         | <b>Vehicle Mix</b>                             |     |         |       |       |
| Near/Far Lane Distance:  | 52 feet        |  |     |         |       |       |
| <b>Site Data</b>   |                | VehicleType                                    | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet<br><i>Barrier Type (0-Wall, 1-Berm):</i> 0.0<br><i>Centerline Dist. to Barrier:</i> 100.0 feet<br><i>Centerline Dist. to Observer:</i> 100.0 feet<br><i>Barrier Distance to Observer:</i> 0.0 feet<br><i>Observer Height (Above Pad):</i> 5.0 feet<br><i>Pad Elevation:</i> 0.0 feet<br><i>Road Elevation:</i> 0.0 feet<br><i>Road Grade:</i> 0.0%<br><i>Left View:</i> -90.0 degrees<br><i>Right View:</i> 90.0 degrees |                | Autos: 77.5% 12.9% 9.6% 97.42%                 |     |         |       |       |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%          |     |         |       |       |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%           |     |         |       |       |
|  |                | <b>Noise Source Elevations (in feet)</b>       |     |         |       |       |
|  |                | Autos: 2.000                                   |     |         |       |       |
|  |                | Medium Trucks: 4.000                           |     |         |       |       |
|  |                | Heavy Trucks: 8.006      Grade Adjustment: 0.0 |     |         |       |       |
|  |                | <b>Lane Equivalent Distance (in feet)</b>      |     |         |       |       |
|  |                | Autos: 96.607                                  |     |         |       |       |
|  |                | Medium Trucks: 96.566                          |     |         |       |       |
| Heavy Trucks: 96.608   |                |  |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.2          | 54.7    | 48.4        | 46.8      | 55.3 | 55.5 |
| Heavy Trucks:  | 56.3          | 54.9    | 45.8        | 47.1      | 55.4 | 55.6 |
| Vehicle Noise: | 64.4          | 62.7    | 59.7        | 54.8      | 63.4 | 63.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 36     | 78     | 168    | 363    |
| CNEL: | 39     | 84     | 181    | 391    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Number: 8141  
 Road Segment: w/o (n/o) Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 11,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,180 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.10        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.34       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.30       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.4        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.5          | 56.0    | 49.6        | 48.1      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.5          | 56.1    | 47.0        | 48.3      | 56.7 | 56.8 |
| Vehicle Noise: | 65.7          | 63.9    | 60.9        | 56.1      | 64.6 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 94     | 203    | 438    |
| CNEL: | 47     | 102    | 219    | 471    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Research Dr.      Number: 8141  
 Road Segment: n/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,210 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.99        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.6 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 96     | 207    | 445    |
| CNEL: | 48     | 103    | 222    | 479    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,000 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 900 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.87        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.10       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.06       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.3        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 54.0    | 47.6        | 46.1      | 54.5 | 54.8 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.5        | 46.7      | 55.1 | 55.2 |
| Vehicle Noise: | 63.6          | 61.9    | 58.8        | 54.1      | 62.6 | 63.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 149    | 321    |
| CNEL: | 35     | 74     | 160    | 345    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: n/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |  |
|--|----------------|---|-----|---------|-------|-------|--|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |  |
| Average Daily Traffic (Adt):             | 7,100 vehicles | Autos: 15                                     |     |         |       |       |  |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |  |
| Peak Hour Volume:                        | 710 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |  |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |  |
| Near/Far Lane Distance:                  | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |  |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |  |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |  |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |  |
| Road Elevation: 0.0 feet                 |                | Autos: 93.723                                 |     |         |       |       |  |
| Road Grade: 0.0%                         |                | Medium Trucks: 93.680                         |     |         |       |       |  |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |  |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.90        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.13       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.09       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.9          | 59.0    | 57.2        | 51.2      | 59.8 | 60.4 |
| Medium Trucks: | 54.5          | 53.0    | 46.6        | 45.1      | 53.5 | 53.8 |
| Heavy Trucks:  | 54.9          | 53.5    | 44.4        | 45.7      | 54.0 | 54.2 |
| Vehicle Noise: | 62.6          | 60.9    | 57.8        | 53.0      | 61.6 | 62.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 27     | 59     | 127    | 274    |
| CNEL: | 29     | 63     | 137    | 295    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o Jeronimo Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.37        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.60       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.56       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.4          | 60.5    | 58.8        | 52.7      | 61.3 | 62.0 |
| Medium Trucks: | 56.0          | 54.5    | 48.1        | 46.6      | 55.0 | 55.3 |
| Heavy Trucks:  | 56.4          | 55.0    | 46.0        | 47.2      | 55.6 | 55.7 |
| Vehicle Noise: | 64.1          | 62.4    | 59.3        | 54.6      | 63.1 | 63.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 75     | 161    | 347    |
| CNEL: | 37     | 80     | 173    | 373    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA  |                | NOISE MODEL INPUTS                            |     |         |       |       |
|---|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>   |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):  | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:   | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:   | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:  | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:   | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>  |                | VehicleType                                   | Day | Evening | Night | Daily |
| <div><b>Barrier Height:</b> 0.0 feet</div> <div>Barrier Type (0-Wall, 1-Berm): 0.0</div> <div>Centerline Dist. to Barrier: 100.0 feet</div> <div>Centerline Dist. to Observer: 100.0 feet</div> <div>Barrier Distance to Observer: 0.0 feet</div> <div>Observer Height (Above Pad): 5.0 feet</div> <div>Pad Elevation: 0.0 feet</div> <div>Road Elevation: 0.0 feet</div> <div>Road Grade: 0.0%</div> <div>Left View: -90.0 degrees</div> <div>Right View: 90.0 degrees</div> <td colspan="5">Autos: 77.5% 12.9% 9.6% 97.42%</td> |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|   |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|   |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|   |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|   |                | Autos: 2.000                                  |     |         |       |       |
|   |                | Medium Trucks: 4.000                          |     |         |       |       |
|   |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|   |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|   |                | Autos: 93.723                                 |     |         |       |       |
|   |                | Medium Trucks: 93.680                         |     |         |       |       |
|   |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.38        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 55.0          | 53.5    | 47.1        | 45.6      | 54.0 | 54.3 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.1          | 61.4    | 58.3        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 148    | 319    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o Rockfield B.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 18,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,800 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.14         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.09       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.05       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.0          | 63.1    | 61.3        | 55.2      | 63.9 | 64.5 |
| Medium Trucks: | 58.5          | 57.0    | 50.6        | 49.1      | 57.6 | 57.8 |
| Heavy Trucks:  | 58.9          | 57.5    | 48.5        | 49.7      | 58.1 | 58.2 |
| Vehicle Noise: | 66.6          | 64.9    | 61.8        | 57.1      | 65.6 | 66.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 51     | 110    | 237    | 510    |
| CNEL: | 55     | 118    | 254    | 548    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o (w/o) Avenida Carlota      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 14,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 1,490 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.68        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.1          | 62.2    | 60.5        | 54.4      | 63.0 | 63.6 |
| Medium Trucks: | 57.7          | 56.2    | 49.8        | 48.3      | 56.7 | 57.0 |
| Heavy Trucks:  | 58.1          | 56.7    | 47.7        | 48.9      | 57.3 | 57.4 |
| Vehicle Noise: | 65.8          | 64.1    | 61.0        | 56.2      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 224    | 483    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: s/o (w/o) Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,110 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.96        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.19       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.15       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.9          | 61.0    | 59.2        | 53.1      | 61.8 | 62.4 |
| Medium Trucks: | 56.4          | 54.9    | 48.5        | 47.0      | 55.5 | 55.7 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.4        | 47.6      | 56.0 | 56.1 |
| Vehicle Noise: | 64.5          | 62.8    | 59.8        | 55.0      | 63.5 | 64.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 37     | 80     | 171    | 369    |
| CNEL: | 40     | 86     | 184    | 397    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Route Dr.      Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 9,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 950 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 70 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 93.723                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 93.680                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.63        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -19.87       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -23.83       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.7          | 54.2    | 47.9        | 46.3      | 54.8 | 55.0 |
| Heavy Trucks:  | 56.2          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 63.9          | 62.1    | 59.1        | 54.3      | 62.8 | 63.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 72     | 155    | 333    |
| CNEL: | 36     | 77     | 166    | 358    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Ridge Valley      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 9,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 980 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.91        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.15       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.10       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.3          | 61.4    | 59.6        | 53.6      | 62.2 | 62.8 |
| Medium Trucks: | 56.7          | 55.2    | 48.8        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 56.7          | 55.3    | 46.2        | 47.5      | 55.8 | 56.0 |
| Vehicle Noise: | 64.9          | 63.1    | 60.1        | 55.3      | 63.8 | 64.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 83     | 180    | 387    |
| CNEL: | 42     | 90     | 193    | 416    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: e/o Marine Wy      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| Highway Data                             |              | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 55 mph       | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet      | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |              | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -22.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -40.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -44.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 43.4          | 41.5    | 39.7        | 33.6      | 42.3 | 42.9 |
| Medium Trucks: | 36.8          | 35.2    | 28.9        | 27.3      | 35.8 | 36.0 |
| Heavy Trucks:  | 36.8          | 35.4    | 26.3        | 27.6      | 35.9 | 36.1 |
| Vehicle Noise: | 44.9          | 43.2    | 40.2        | 35.4      | 43.9 | 44.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 2      | 4      | 8      | 18     |
| CNEL: | 2      | 4      | 9      | 20     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: e/o Sterling      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |               | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|---------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |               | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 100 vehicles  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%           | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 10 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph        | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet       | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |               | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet      | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0           | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet    | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet    | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet      | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet      | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet      | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet      | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%          | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -22.82       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -40.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -44.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 43.4          | 41.5    | 39.7        | 33.6      | 42.3 | 42.9 |
| Medium Trucks: | 36.8          | 35.2    | 28.9        | 27.3      | 35.8 | 36.0 |
| Heavy Trucks:  | 36.8          | 35.4    | 26.3        | 27.6      | 35.9 | 36.1 |
| Vehicle Noise: | 44.9          | 43.2    | 40.2        | 35.4      | 43.9 | 44.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 2      | 4      | 8      | 18     |
| CNEL: | 2      | 4      | 9      | 20     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: w/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 7,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 760 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.01        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.25       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.21       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.2          | 60.3    | 58.5        | 52.5      | 61.1 | 61.7 |
| Medium Trucks: | 55.6          | 54.1    | 47.7        | 46.1      | 54.6 | 54.8 |
| Heavy Trucks:  | 55.6          | 54.2    | 45.1        | 46.4      | 54.7 | 54.9 |
| Vehicle Noise: | 63.8          | 62.0    | 59.0        | 54.2      | 62.7 | 63.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 33     | 70     | 152    | 327    |
| CNEL: | 35     | 76     | 163    | 352    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 15,600 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,560 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.89        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.13       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.09       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.3          | 63.4    | 61.6        | 55.6      | 64.2 | 64.8 |
| Medium Trucks: | 58.7          | 57.2    | 50.8        | 49.3      | 57.7 | 58.0 |
| Heavy Trucks:  | 58.7          | 57.3    | 48.3        | 49.5      | 57.9 | 58.0 |
| Vehicle Noise: | 66.9          | 65.1    | 62.2        | 57.3      | 65.8 | 66.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 53     | 114    | 245    | 528    |
| CNEL: | 57     | 122    | 264    | 568    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 23,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,390 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.38         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.86       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.82       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.7          | 58.2    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 286    | 616    |
| CNEL: | 66     | 143    | 307    | 662    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 24,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,400 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 93.723 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 93.680 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 93.723 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.39         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.84       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.80       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.5        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.8          | 58.3    | 51.9        | 50.3      | 58.8 | 59.0 |
| Heavy Trucks:  | 60.2          | 58.8    | 49.7        | 51.0      | 59.3 | 59.5 |
| Vehicle Noise: | 67.9          | 66.1    | 63.1        | 58.3      | 66.9 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 62     | 133    | 287    | 618    |
| CNEL: | 66     | 143    | 308    | 664    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Rockfield Bl.      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 20,000 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,000 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 0.60         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -16.64       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -20.59       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.7        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 59.0          | 57.5    | 51.1        | 49.6      | 58.0 | 58.2 |
| Heavy Trucks:  | 59.4          | 58.0    | 48.9        | 50.2      | 58.5 | 58.7 |
| Vehicle Noise: | 67.1          | 65.4    | 62.3        | 57.5      | 66.1 | 66.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 55     | 118    | 254    | 547    |
| CNEL: | 59     | 127    | 273    | 588    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |  |
| Average Daily Traffic (Adt): 10,300 vehicles |  | Autos: 15                                     |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |  |
| Peak Hour Volume: 1,030 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |  |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.69        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.89       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.8        | 53.8      | 62.4 | 63.0 |
| Medium Trucks: | 56.9          | 55.4    | 49.0        | 47.5      | 55.9 | 56.2 |
| Heavy Trucks:  | 56.9          | 55.5    | 46.5        | 47.7      | 56.1 | 56.2 |
| Vehicle Noise: | 65.1          | 63.3    | 60.4        | 55.5      | 64.0 | 64.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 86     | 186    | 400    |
| CNEL: | 43     | 93     | 200    | 430    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 20,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,080 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.1 |
| Medium Trucks: | 59.9          | 58.4    | 52.1        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 60.0          | 58.5    | 49.5        | 50.8      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.4    | 63.4        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 639    |
| CNEL: | 69     | 148    | 319    | 688    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Roosevelt      Number: 8141  
 Road Segment: w/o Sand Canyon Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 860 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.48        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 53.0      | 61.6 | 62.2 |
| Medium Trucks: | 56.1          | 54.6    | 48.2        | 46.7      | 55.1 | 55.4 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 64.3          | 62.5    | 59.6        | 54.7      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 165    | 355    |
| CNEL: | 38     | 82     | 177    | 382    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 26,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,680 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.46         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.78       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.74       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.6          | 65.7    | 64.0        | 57.9      | 66.5 | 67.2 |
| Medium Trucks: | 61.0          | 59.5    | 53.2        | 51.6      | 60.1 | 60.3 |
| Heavy Trucks:  | 61.1          | 59.6    | 50.6        | 51.9      | 60.2 | 60.3 |
| Vehicle Noise: | 69.2          | 67.5    | 64.5        | 59.6      | 68.2 | 68.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 76     | 163    | 351    | 757    |
| CNEL: | 81     | 175    | 378    | 814    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 31,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 3,190 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.84         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.40       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.36       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.7          | 67.8    | 66.1        | 60.0      | 68.6 | 69.3 |
| Medium Trucks: | 63.0          | 61.5    | 55.1        | 53.6      | 62.0 | 62.3 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.4      | 61.8 | 61.9 |
| Vehicle Noise: | 71.2          | 69.5    | 66.6        | 61.6      | 70.2 | 70.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 103    | 222    | 477    | 1,028  |
| CNEL: | 111    | 239    | 514    | 1,108  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 28,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 2,800 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 1.27         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -15.97       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -19.92       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.5        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.4          | 60.9    | 54.5        | 53.0      | 61.5 | 61.7 |
| Heavy Trucks:  | 62.1          | 60.7    | 51.6        | 52.9      | 61.2 | 61.4 |
| Vehicle Noise: | 70.7          | 68.9    | 66.0        | 61.1      | 69.6 | 70.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 94     | 203    | 438    | 943    |
| CNEL: | 102    | 219    | 471    | 1,015  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: s/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |  |        |         |                       |        |
|--|--|---|--|--------|---------|-----------------------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |  |        |         |                       |        |
| Average Daily Traffic (Adt): 50,200 vehicles |  | Autos: 15                                     |  |        |         |                       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |  |        |         |                       |        |
| Peak Hour Volume: 5,020 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |  |        |         |                       |        |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |  |        |         |                       |        |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   |  | Day    | Evening | Night                 | Daily  |
| <b>Site Data</b>                             |  | Autos:  |  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                |  | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 |  | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |  |        |         |                       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  |  | 2.000  |         |                       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                |  | 4.000  |         |                       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 |  | 8.006  |         | Grade Adjustment: 0.0 |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |  |        |         |                       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  |  | 48.505 |         |                       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                |  | 48.423 |         |                       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 |  | 48.506 |         |                       |        |
| Right View: 90.0 degrees                     |  |   |  |        |         |                       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.46         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.78       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.74       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 76.9          | 75.0    | 73.2        | 67.2      | 75.8 | 76.4 |
| Medium Trucks: | 70.0          | 68.5    | 62.1        | 60.6      | 69.0 | 69.3 |
| Heavy Trucks:  | 69.3          | 67.9    | 58.9        | 60.1      | 68.5 | 68.6 |
| Vehicle Noise: | 78.3          | 76.5    | 73.7        | 68.7      | 77.3 | 77.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 304    | 656    | 1,413  | 3,044  |
| CNEL: | 328    | 707    | 1,523  | 3,281  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: s/o Roosevelt      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,000 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,300 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 48.505                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 48.423                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 48.506                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 3.69         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -13.54       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -17.50       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.1          | 75.2    | 73.5        | 67.4      | 76.0 | 76.6 |
| Medium Trucks: | 70.2          | 68.7    | 62.4        | 60.8      | 69.3 | 69.5 |
| Heavy Trucks:  | 69.6          | 68.2    | 59.1        | 60.4      | 68.7 | 68.8 |
| Vehicle Noise: | 78.5          | 76.8    | 73.9        | 68.9      | 77.5 | 78.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 316    | 680    | 1,465  | 3,156  |
| CNEL: | 340    | 733    | 1,579  | 3,402  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: n/o I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 62,000 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 6,200 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 65 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 175 feet             |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 48.505 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 48.423 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 48.506 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 74.55 | 4.38         | 0.09     | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 84.86 | -12.86       | 0.11     | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 88.18 | -16.82       | 0.09     | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 77.8          | 75.9    | 74.2        | 68.1      | 76.7 | 77.3 |
| Medium Trucks: | 70.9          | 69.4    | 63.0        | 61.5      | 70.0 | 70.2 |
| Heavy Trucks:  | 70.3          | 68.8    | 59.8        | 61.0      | 69.4 | 69.5 |
| Vehicle Noise: | 79.2          | 77.4    | 74.6        | 69.6      | 78.2 | 78.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 350    | 755    | 1,626  | 3,503  |
| CNEL: | 378    | 814    | 1,753  | 3,777  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: b/w I-5 SB Ramps and Burt Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 52,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.03         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.20       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.16       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.9          | 70.0    | 68.3        | 62.2      | 70.8 | 71.4 |
| Medium Trucks: | 65.2          | 63.7    | 57.3        | 55.8      | 64.2 | 64.4 |
| Heavy Trucks:  | 64.9          | 63.4    | 54.4        | 55.6      | 64.0 | 64.1 |
| Vehicle Noise: | 73.4          | 71.7    | 68.8        | 63.8      | 72.4 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 144    | 310    | 669    | 1,441  |
| CNEL: | 155    | 334    | 720    | 1,552  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: b/w Burt Rd. and Oak Cyn./Laguna Cyn. Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 53,800 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 5,380 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.11         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -13.13       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.09       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.0          | 70.1    | 68.3        | 62.3      | 70.9 | 71.5 |
| Medium Trucks: | 65.2          | 63.7    | 57.4        | 55.8      | 64.3 | 64.5 |
| Heavy Trucks:  | 64.9          | 63.5    | 54.5        | 55.7      | 64.1 | 64.2 |
| Vehicle Noise: | 73.5          | 71.7    | 68.8        | 63.9      | 72.5 | 72.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 146    | 314    | 676    | 1,457  |
| CNEL: | 157    | 338    | 728    | 1,569  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: n/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 43,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,320 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.15         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.08       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.04       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.3      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 271    | 584    | 1,259  |
| CNEL: | 136    | 292    | 629    | 1,356  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: s/o Waterworks Wy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,890 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.70         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.54       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.50       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.6          | 68.7    | 66.9        | 60.9      | 69.5 | 70.1 |
| Medium Trucks: | 63.8          | 62.3    | 56.0        | 54.4      | 62.9 | 63.1 |
| Heavy Trucks:  | 63.5          | 62.1    | 53.1        | 54.3      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.3    | 67.4        | 62.5      | 71.0 | 71.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 117    | 253    | 545    | 1,174  |
| CNEL: | 126    | 272    | 587    | 1,264  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 39,300 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,930 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.74         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.49       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.45       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.7          | 68.8    | 67.0        | 60.9      | 69.6 | 70.2 |
| Medium Trucks: | 63.9          | 62.4    | 56.0        | 54.5      | 62.9 | 63.2 |
| Heavy Trucks:  | 63.6          | 62.1    | 53.1        | 54.4      | 62.7 | 62.8 |
| Vehicle Noise: | 72.1          | 70.4    | 67.5        | 62.5      | 71.1 | 71.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 118    | 255    | 549    | 1,182  |
| CNEL: | 127    | 274    | 591    | 1,273  |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sand Canyon. Av.      Number: 8141  
 Road Segment: b/w Alton Pkwy.and I-405 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 41,500 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 4,150 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 2.98         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.26       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.21       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 70.9          | 69.0    | 67.2        | 61.2      | 69.8 | 70.4 |
| Medium Trucks: | 64.1          | 62.6    | 56.2        | 54.7      | 63.2 | 63.4 |
| Heavy Trucks:  | 63.8          | 62.4    | 53.3        | 54.6      | 62.9 | 63.1 |
| Vehicle Noise: | 72.4          | 70.6    | 67.7        | 62.8      | 71.3 | 71.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 123    | 264    | 569    | 1,226  |
| CNEL: | 132    | 284    | 613    | 1,320  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.      Number: 8141  
 Road Segment: s/o Moulton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA   |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>  |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 8,900 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:  | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:  | 890 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:   | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:  | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>   |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet<br><b>Barrier Type (0-Wall, 1-Berm):</b> 0.0<br><b>Centerline Dist. to Barrier:</b> 100.0 feet<br><b>Centerline Dist. to Observer:</b> 100.0 feet<br><b>Barrier Distance to Observer:</b> 0.0 feet<br><b>Observer Height (Above Pad):</b> 5.0 feet<br><b>Pad Elevation:</b> 0.0 feet<br><b>Road Elevation:</b> 0.0 feet<br><b>Road Grade:</b> 0.0%<br><b>Left View:</b> -90.0 degrees<br><b>Right View:</b> 90.0 degrees |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
|  |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
|  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
|  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
|  |                | Autos: 2.000                                  |     |         |       |       |
|  |                | Medium Trucks: 4.000                          |     |         |       |       |
|  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
|  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
|  |                | Autos: 93.723                                 |     |         |       |       |
|  |                | Medium Trucks: 93.680                         |     |         |       |       |
|  |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -2.91        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.15       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.11       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.9          | 60.0    | 58.2        | 52.2      | 60.8 | 61.4 |
| Medium Trucks: | 55.5          | 53.9    | 47.6        | 46.0      | 54.5 | 54.7 |
| Heavy Trucks:  | 55.9          | 54.5    | 45.4        | 46.7      | 55.0 | 55.1 |
| Vehicle Noise: | 63.6          | 61.8    | 58.8        | 54.0      | 62.6 | 63.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 32     | 69     | 148    | 319    |
| CNEL: | 34     | 74     | 159    | 343    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santa Maria Av.      Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 98.412                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 98.372                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -4.17        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -21.41       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -25.36       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.6          | 56.7    | 54.9        | 48.9      | 57.5 | 58.1 |
| Medium Trucks: | 52.3          | 50.8    | 44.5        | 42.9      | 51.4 | 51.6 |
| Heavy Trucks:  | 53.2          | 51.8    | 42.7        | 44.0      | 52.3 | 52.4 |
| Vehicle Noise: | 60.4          | 58.7    | 55.5        | 50.8      | 59.4 | 59.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 20     | 42     | 91     | 196    |
| CNEL: | 21     | 45     | 98     | 210    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Santiago Canyon Rd.      Number: 8141  
 Road Segment: e/o SR-241 NB Ramp      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Scientific Wy.      Number: 8141  
 Road Segment: s/o ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,700 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 170 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -10.52       | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -27.76       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -31.71       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.7          | 53.8    | 52.0        | 45.9      | 54.6 | 55.2 |
| Medium Trucks: | 49.1          | 47.5    | 41.2        | 39.6      | 48.1 | 48.3 |
| Heavy Trucks:  | 49.1          | 47.7    | 38.6        | 39.9      | 48.2 | 48.4 |
| Vehicle Noise: | 57.2          | 55.5    | 52.5        | 47.7      | 56.2 | 56.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 26     | 56     | 120    |
| CNEL: | 13     | 28     | 60     | 130    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Spectrum      Number: 8141  
 Road Segment: w/o Fortune Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 3,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 300 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 99.544                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 99.504                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -6.09        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -23.33       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -27.28       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 52.4          | 50.5    | 48.8        | 42.7      | 51.3 | 51.9 |
| Medium Trucks: | 46.6          | 45.1    | 38.8        | 37.2      | 45.7 | 45.9 |
| Heavy Trucks:  | 48.5          | 47.1    | 38.0        | 39.3      | 47.6 | 47.8 |
| Vehicle Noise: | 54.6          | 52.9    | 49.5        | 45.1      | 53.6 | 54.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 8      | 17     | 38     | 81     |
| CNEL: | 9      | 19     | 40     | 87     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Sterling      Number: 8141  
 Road Segment: b/w Rockfield Bl and Barrana Pkwy      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |              | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph       | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet      | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |              | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -20.86       | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -38.10       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -42.05       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 37.7          | 35.8    | 34.0        | 27.9      | 36.6 | 37.2 |
| Medium Trucks: | 31.9          | 30.4    | 24.0        | 22.5      | 30.9 | 31.1 |
| Heavy Trucks:  | 33.7          | 32.3    | 23.3        | 24.5      | 32.9 | 33.0 |
| Vehicle Noise: | 39.9          | 38.2    | 34.7        | 30.3      | 38.9 | 39.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 1      | 2      | 4      | 8      |
| CNEL: | 1      | 2      | 4      | 9      |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Number: 8141  
 Road Segment: e/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--|--|---|-----|---------|-------|-------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt): 20,800 vehicles |  | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume: 2,080 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |  |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |  |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.84       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.5          | 64.6    | 62.9        | 56.8      | 65.4 | 66.1 |
| Medium Trucks: | 59.9          | 58.4    | 52.1        | 50.5      | 59.0 | 59.2 |
| Heavy Trucks:  | 60.0          | 58.5    | 49.5        | 50.8      | 59.1 | 59.2 |
| Vehicle Noise: | 68.1          | 66.4    | 63.4        | 58.5      | 67.1 | 67.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 64     | 138    | 297    | 639    |
| CNEL: | 69     | 148    | 319    | 688    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Number: 8141  
 Road Segment: w/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 16,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,610 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -0.75        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.99       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 65.4          | 63.5    | 61.8        | 55.7      | 64.3 | 64.9 |
| Medium Trucks: | 58.8          | 57.3    | 51.0        | 49.4      | 57.9 | 58.1 |
| Heavy Trucks:  | 58.9          | 57.4    | 48.4        | 49.6      | 58.0 | 58.1 |
| Vehicle Noise: | 67.0          | 65.2    | 62.3        | 57.4      | 66.0 | 66.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 54     | 116    | 250    | 539    |
| CNEL: | 58     | 125    | 269    | 580    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Technology Dr.      Number: 8141  
 Road Segment: e/o Laguna Canyon Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 17,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,710 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.871                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.830                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.871                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -0.08        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -17.32       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -21.27       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 58.1          | 56.6    | 50.2        | 48.7      | 57.1 | 57.4 |
| Heavy Trucks:  | 58.5          | 57.1    | 48.0        | 49.3      | 57.6 | 57.8 |
| Vehicle Noise: | 66.2          | 64.5    | 61.4        | 56.6      | 65.2 | 65.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 48     | 103    | 221    | 477    |
| CNEL: | 51     | 110    | 238    | 512    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 6,300 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 630 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.83        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -22.07       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -26.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.7        | 51.6      | 60.3 | 60.9 |
| Medium Trucks: | 54.7          | 53.2    | 46.9        | 45.3      | 53.8 | 54.0 |
| Heavy Trucks:  | 54.8          | 53.4    | 44.3        | 45.6      | 53.9 | 54.1 |
| Vehicle Noise: | 62.9          | 61.2    | 58.2        | 53.3      | 61.9 | 62.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 62     | 134    | 288    |
| CNEL: | 31     | 67     | 144    | 310    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Number: 8141  
 Road Segment: w/o Lake Forest Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,200 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 620 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 93.723                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 93.680                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -4.48        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -21.72       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -25.68       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 60.3          | 58.4    | 56.7        | 50.6      | 59.2 | 59.8 |
| Medium Trucks: | 53.9          | 52.4    | 46.0        | 44.5      | 52.9 | 53.2 |
| Heavy Trucks:  | 54.3          | 52.9    | 43.8        | 45.1      | 53.4 | 53.6 |
| Vehicle Noise: | 62.0          | 60.3    | 57.2        | 52.4      | 61.0 | 61.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 25     | 54     | 116    | 251    |
| CNEL: | 27     | 58     | 125    | 269    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Number: 8141  
 Road Segment: w/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                        |     |         |       |       |  |
|--------------------------------|----------------|---|-----|---------|-------|-------|--|
| Highway Data                   |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |  |
| Average Daily Traffic (Adt):   | 6,900 vehicles | Autos: 15                                 |     |         |       |       |  |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |  |
| Peak Hour Volume:              | 690 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |  |
| Vehicle Speed:                 | 45 mph         | Vehicle Mix                               |     |         |       |       |  |
| Near/Far Lane Distance:        | 36 feet        | VehicleType                               | Day | Evening | Night | Daily |  |
| Site Data                      |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |  |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |  |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |  |
| Centerline Dist. to Barrier:   | 100.0 feet     | Noise Source Elevations (in feet)         |     |         |       |       |  |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                              |     |         |       |       |  |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                      |     |         |       |       |  |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |  |
| Pad Elevation:                 | 0.0 feet       | Lane Equivalent Distance (in feet)        |     |         |       |       |  |
| Road Elevation:                | 0.0 feet       | Autos: 98.412                             |     |         |       |       |  |
| Road Grade:                    | 0.0%           | Medium Trucks: 98.372                     |     |         |       |       |  |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 98.413                      |     |         |       |       |  |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -3.56        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -20.80       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -24.76       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 59.2          | 57.3    | 55.5        | 49.5      | 58.1 | 58.7 |
| Medium Trucks: | 52.9          | 51.4    | 45.1        | 43.5      | 52.0 | 52.2 |
| Heavy Trucks:  | 53.8          | 52.4    | 43.3        | 44.6      | 52.9 | 53.1 |
| Vehicle Noise: | 61.0          | 59.3    | 56.1        | 51.4      | 60.0 | 60.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 22     | 46     | 100    | 215    |
| CNEL: | 23     | 50     | 107    | 231    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Toledo Wy.      Number: 8141  
 Road Segment: e/o Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 50 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 70 feet        |   |     |         |       |       |
| <b>Site Data</b>                         |                | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Barrier Height:</b> 0.0 feet          |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Autos: 2.000                                  |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Medium Trucks: 4.000                          |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Grade: 0.0%                         |                | Autos: 93.723                                 |     |         |       |       |
| Left View: -90.0 degrees                 |                | Medium Trucks: 93.680                         |     |         |       |       |
| Right View: 90.0 degrees                 |                | Heavy Trucks: 93.723                          |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -3.38        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -20.62       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -24.57       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.4          | 59.5    | 57.8        | 51.7      | 60.3 | 60.9 |
| Medium Trucks: | 55.0          | 53.5    | 47.1        | 45.6      | 54.0 | 54.3 |
| Heavy Trucks:  | 55.4          | 54.0    | 45.0        | 46.2      | 54.6 | 54.7 |
| Vehicle Noise: | 63.1          | 61.4    | 58.3        | 53.5      | 62.1 | 62.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 30     | 64     | 138    | 297    |
| CNEL: | 32     | 69     | 148    | 319    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: b/w Culver Dr. and I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 38,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,870 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.05         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.18       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.14       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.2          | 67.3    | 65.6        | 59.5      | 68.1 | 68.7 |
| Medium Trucks: | 62.6          | 61.1    | 54.8        | 53.2      | 61.7 | 61.9 |
| Heavy Trucks:  | 62.7          | 61.2    | 52.2        | 53.5      | 61.8 | 61.9 |
| Vehicle Noise: | 70.8          | 69.1    | 66.1        | 61.2      | 69.8 | 70.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 97     | 208    | 449    | 967    |
| CNEL: | 104    | 224    | 483    | 1,040  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: e/o I-5 NB Ramps      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.56         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.68       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -20.63       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.7          | 64.9    | 63.1        | 57.0      | 65.7 | 66.3 |
| Medium Trucks: | 60.1          | 58.6    | 52.3        | 50.7      | 59.2 | 59.4 |
| Heavy Trucks:  | 60.2          | 58.7    | 49.7        | 51.0      | 59.3 | 59.4 |
| Vehicle Noise: | 68.3          | 66.6    | 63.6        | 58.7      | 67.3 | 67.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 660    |
| CNEL: | 71     | 153    | 329    | 710    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,930 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.03         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.21       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.16       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.2          | 64.3    | 62.6        | 56.5      | 65.1 | 65.7 |
| Medium Trucks: | 59.6          | 58.1    | 51.7        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.6          | 58.2    | 49.2        | 50.4      | 58.8 | 58.9 |
| Vehicle Noise: | 67.8          | 66.0    | 63.1        | 58.2      | 66.8 | 67.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 131    | 282    | 608    |
| CNEL: | 65     | 141    | 304    | 654    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: e/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.08         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.5      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.2        | 50.5      | 58.8 | 59.0 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 612    |
| CNEL: | 66     | 142    | 306    | 659    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: e/o Sand Canyon      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 25,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,550 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.24         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -16.00       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.95       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.4          | 65.5    | 63.8        | 57.7      | 66.3 | 66.9 |
| Medium Trucks: | 60.8          | 59.3    | 52.9        | 51.4      | 59.9 | 60.1 |
| Heavy Trucks:  | 60.9          | 59.4    | 50.4        | 51.6      | 60.0 | 60.1 |
| Vehicle Noise: | 69.0          | 67.2    | 64.3        | 59.4      | 68.0 | 68.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 73     | 158    | 340    | 732    |
| CNEL: | 79     | 170    | 366    | 788    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: e/o Bake Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.63         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.60       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.56       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 388    | 836    |
| CNEL: | 90     | 194    | 417    | 899    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: b/w Lake Forest Dr. and Ridge Route Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 35,700 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,570 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.70         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.53       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.49       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.4          | 67.5    | 65.7        | 59.6      | 68.3 | 68.9 |
| Medium Trucks: | 62.8          | 61.2    | 54.9        | 53.3      | 61.8 | 62.0 |
| Heavy Trucks:  | 62.8          | 61.4    | 52.3        | 53.6      | 61.9 | 62.1 |
| Vehicle Noise: | 70.9          | 69.2    | 66.2        | 61.4      | 69.9 | 70.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 99     | 212    | 457    | 985    |
| CNEL: | 106    | 228    | 492    | 1,060  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: w/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 39,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 3,990 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 3.19         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -14.05       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -18.01       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 69.8          | 67.9    | 66.2        | 60.1      | 68.7 | 69.4 |
| Medium Trucks: | 63.2          | 61.7    | 55.4        | 53.8      | 62.3 | 62.5 |
| Heavy Trucks:  | 63.3          | 61.8    | 52.8        | 54.1      | 62.4 | 62.5 |
| Vehicle Noise: | 71.4          | 69.7    | 66.7        | 61.8      | 70.4 | 70.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 106    | 229    | 493    | 1,061  |
| CNEL: | 114    | 246    | 530    | 1,142  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: e/o El Toro Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |         |                       |        |  |
|--|--|--|--------|---------|-----------------------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |         |                       |        |  |
| Average Daily Traffic (Adt): 23,600 vehicles |  | Autos: 15                              |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |         |                       |        |  |
| Peak Hour Volume: 2,360 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |         |                       |        |  |
| Vehicle Speed: 50 mph                        |  | Vehicle Mix                            |        |         |                       |        |  |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                            | Day    | Evening | Night                 | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 93.723 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 93.680 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 93.723 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |  |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.32         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.92       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.87       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.1          | 64.2    | 62.5        | 56.4      | 65.0 | 65.6 |
| Medium Trucks: | 59.7          | 58.2    | 51.8        | 50.3      | 58.7 | 59.0 |
| Heavy Trucks:  | 60.1          | 58.7    | 49.7        | 50.9      | 59.3 | 59.4 |
| Vehicle Noise: | 67.8          | 66.1    | 63.0        | 58.2      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 611    |
| CNEL: | 66     | 141    | 305    | 656    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: n/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 26,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,640 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | 1.81         | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -15.43       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -19.39       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.6          | 64.7    | 62.9        | 56.9      | 65.5 | 66.1 |
| Medium Trucks: | 60.2          | 58.7    | 52.3        | 50.8      | 59.2 | 59.5 |
| Heavy Trucks:  | 60.6          | 59.2    | 50.1        | 51.4      | 59.7 | 59.9 |
| Vehicle Noise: | 68.3          | 66.6    | 63.5        | 58.7      | 67.3 | 67.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 66     | 142    | 306    | 658    |
| CNEL: | 71     | 152    | 328    | 707    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Trabuco Rd.      Number: 8141  
 Road Segment: s/o Alicia Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,700 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 70 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 93.723                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 93.680                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 93.723                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.04        | -4.20    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.28       | -4.19    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.24       | -4.20    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.8          | 61.9    | 60.1        | 54.0      | 62.7 | 63.3 |
| Medium Trucks: | 57.3          | 55.8    | 49.5        | 47.9      | 56.4 | 56.6 |
| Heavy Trucks:  | 57.7          | 56.3    | 47.3        | 48.5      | 56.9 | 57.0 |
| Vehicle Noise: | 65.5          | 63.7    | 60.7        | 55.9      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 43     | 92     | 197    | 425    |
| CNEL: | 46     | 98     | 212    | 457    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                       |       |        |
|--|--|--|--------|-----------------------|-------|--------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                       |       |        |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                              |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                       |       |        |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                            | Day    | Evening               | Night | Daily  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |  |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.14        | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.38       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.33       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.9        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.5      | 57.0 | 57.2 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.3    | 61.4        | 56.5      | 65.1 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 468    |
| CNEL: | 50     | 109    | 234    | 504    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Number: 8141  
 Road Segment: s/o Portola Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,140 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.15         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.09       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.05       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 195    | 420    | 905    |
| CNEL: | 97     | 210    | 452    | 973    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Number: 8141  
 Road Segment: n/o La Colina Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 31,300 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 3,130 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 89.850                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 89.805                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 89.850                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 2.13         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.11       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.06       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.8          | 66.9    | 65.1        | 59.1      | 67.7 | 68.3 |
| Medium Trucks: | 62.2          | 60.7    | 54.3        | 52.8      | 61.2 | 61.5 |
| Heavy Trucks:  | 62.2          | 60.8    | 51.8        | 53.0      | 61.4 | 61.5 |
| Vehicle Noise: | 70.4          | 68.6    | 65.7        | 60.8      | 69.3 | 69.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 90     | 194    | 419    | 903    |
| CNEL: | 97     | 209    | 451    | 971    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Tustin Ranch Rd.      Number: 8141  
 Road Segment: s/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 27,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,790 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 88 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 89.850 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 89.805 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 89.850 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.63         | -3.92    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.60       | -3.92    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.56       | -3.92    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.3          | 66.4    | 64.6        | 58.6      | 67.2 | 67.8 |
| Medium Trucks: | 61.7          | 60.2    | 53.8        | 52.3      | 60.7 | 61.0 |
| Heavy Trucks:  | 61.7          | 60.3    | 51.3        | 52.5      | 60.9 | 61.0 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.8 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 180    | 388    | 836    |
| CNEL: | 90     | 194    | 417    | 899    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: University Dr.      Number: 8141  
 Road Segment: b/w I-405 SB Ramps and Michelson Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 60,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 6,010 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 4.59         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -12.65       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -16.61       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 72.5          | 70.6    | 68.8        | 62.8      | 71.4 | 72.0 |
| Medium Trucks: | 65.7          | 64.2    | 57.9        | 56.3      | 64.8 | 65.0 |
| Heavy Trucks:  | 65.4          | 64.0    | 54.9        | 56.2      | 64.6 | 64.7 |
| Vehicle Noise: | 74.0          | 72.2    | 69.3        | 64.4      | 72.9 | 73.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 157    | 338    | 728    | 1,569  |
| CNEL: | 169    | 364    | 784    | 1,690  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Number: 8141  
 Road Segment: w/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 22,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,220 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.26         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.98       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.93       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.2          | 66.3    | 64.5        | 58.4      | 67.1 | 67.7 |
| Medium Trucks: | 61.4          | 59.9    | 53.5        | 52.0      | 60.4 | 60.7 |
| Heavy Trucks:  | 61.1          | 59.7    | 50.6        | 51.9      | 60.2 | 60.4 |
| Vehicle Noise: | 69.6          | 67.9    | 65.0        | 60.1      | 68.6 | 69.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 81     | 174    | 375    | 808    |
| CNEL: | 87     | 187    | 404    | 870    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Number: 8141  
 Road Segment: e/o Jamboree      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 23,500 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 2,350 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 0.51         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -16.73       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -20.68       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 68.4          | 66.5    | 64.8        | 58.7      | 67.3 | 67.9 |
| Medium Trucks: | 61.6          | 60.1    | 53.8        | 52.2      | 60.7 | 60.9 |
| Heavy Trucks:  | 61.3          | 59.9    | 50.9        | 52.1      | 60.5 | 60.6 |
| Vehicle Noise: | 69.9          | 68.1    | 65.2        | 60.3      | 68.9 | 69.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 84     | 181    | 389    | 839    |
| CNEL: | 90     | 195    | 419    | 903    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 26,200 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 2,620 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.36         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.88       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.83       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.9        | 57.8      | 66.4 | 67.1 |
| Medium Trucks: | 60.9          | 59.4    | 53.1        | 51.5      | 60.0 | 60.2 |
| Heavy Trucks:  | 61.0          | 59.5    | 50.5        | 51.8      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.4    | 64.4        | 59.5      | 68.1 | 68.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 75     | 161    | 346    | 746    |
| CNEL: | 80     | 173    | 372    | 802    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Number: 8141  
 Road Segment: e/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 25,900 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,590 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 1.31         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -15.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -19.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 67.5          | 65.6    | 63.8        | 57.8      | 66.4 | 67.0 |
| Medium Trucks: | 60.9          | 59.4    | 53.0        | 51.5      | 59.9 | 60.2 |
| Heavy Trucks:  | 60.9          | 59.5    | 50.5        | 51.7      | 60.1 | 60.2 |
| Vehicle Noise: | 69.1          | 67.3    | 64.4        | 59.5      | 68.0 | 68.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 74     | 159    | 343    | 740    |
| CNEL: | 80     | 171    | 369    | 796    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av.      Number: 8141  
 Road Segment: e/o Yale Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 13,000 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,300 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.68        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.92       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.88       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.4    | 50.0        | 48.5      | 56.9 | 57.2 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 66.1          | 64.3    | 61.4        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 47     | 101    | 217    | 467    |
| CNEL: | 50     | 108    | 233    | 503    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Walnut Av./I-5 SB Ramps      Number: 8141  
 Road Segment: w/o Jeffrey Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 19,500 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,950 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | 0.08         | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -17.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -21.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 66.3          | 64.4    | 62.6        | 56.5      | 65.2 | 65.8 |
| Medium Trucks: | 59.7          | 58.1    | 51.8        | 50.2      | 58.7 | 58.9 |
| Heavy Trucks:  | 59.7          | 58.3    | 49.2        | 50.5      | 58.8 | 59.0 |
| Vehicle Noise: | 67.8          | 66.1    | 63.1        | 58.3      | 66.8 | 67.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 61     | 132    | 284    | 612    |
| CNEL: | 66     | 142    | 306    | 659    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Number: 8141  
 Road Segment: w/o Paseo Westpark      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,900 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,090 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.45        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.69       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.64       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.7          | 61.8    | 60.1        | 54.0      | 62.6 | 63.2 |
| Medium Trucks: | 57.1          | 55.6    | 49.3        | 47.7      | 56.2 | 56.4 |
| Heavy Trucks:  | 57.2          | 55.7    | 46.7        | 48.0      | 56.3 | 56.4 |
| Vehicle Noise: | 65.3          | 63.6    | 60.6        | 55.7      | 64.3 | 64.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 90     | 193    | 416    |
| CNEL: | 45     | 96     | 207    | 447    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Number: 8141  
 Road Segment: w/o Culver Dr.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 10,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,040 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.65        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.89       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.85       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.9        | 53.8      | 62.4 | 63.0 |
| Medium Trucks: | 56.9          | 55.4    | 49.1        | 47.5      | 56.0 | 56.2 |
| Heavy Trucks:  | 57.0          | 55.5    | 46.5        | 47.7      | 56.1 | 56.2 |
| Vehicle Noise: | 65.1          | 63.4    | 60.4        | 55.5      | 64.1 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 40     | 87     | 187    | 403    |
| CNEL: | 43     | 93     | 201    | 433    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Warner Av.      Number: 8141  
 Road Segment: b/w Culver Dr. and W. Yale Loop      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 11,200 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,120 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.2          | 55.7    | 49.4        | 47.8      | 56.3 | 56.5 |
| Heavy Trucks:  | 57.3          | 55.9    | 46.8        | 48.1      | 56.4 | 56.6 |
| Vehicle Noise: | 65.4          | 63.7    | 60.7        | 55.8      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 91     | 196    | 423    |
| CNEL: | 46     | 98     | 211    | 455    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop      Number: 8141  
 Road Segment: s/o Barranca Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA       |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--------------------------------|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>            |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):   | 6,500 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:          | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:              | 650 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                 | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:        | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>               |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height:                | 0.0 feet       | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): | 0.0            | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier:   | 100.0 feet     | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer:  | 100.0 feet     | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer:  | 0.0 feet       | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad):   | 5.0 feet       | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation:                 | 0.0 feet       | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation:                | 0.0 feet       | Autos: 96.607                                 |     |         |       |       |
| Road Grade:                    | 0.0%           | Medium Trucks: 96.566                         |     |         |       |       |
| Left View:                     | -90.0 degrees  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View:                    | 90.0 degrees   |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -4.69        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -21.93       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -25.89       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 61.5          | 59.6    | 57.8        | 51.8      | 60.4 | 61.0 |
| Medium Trucks: | 54.9          | 53.4    | 47.0        | 45.5      | 53.9 | 54.2 |
| Heavy Trucks:  | 54.9          | 53.5    | 44.5        | 45.7      | 54.1 | 54.2 |
| Vehicle Noise: | 63.1          | 61.3    | 58.4        | 53.5      | 62.0 | 62.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 29     | 63     | 137    | 294    |
| CNEL: | 32     | 68     | 147    | 317    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: W. Yale Loop      Number: 8141  
 Road Segment: s/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 12,300 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,230 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.92        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.16       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.12       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.3          | 62.4    | 60.6        | 54.5      | 63.2 | 63.8 |
| Medium Trucks: | 57.7          | 56.1    | 49.8        | 48.2      | 56.7 | 56.9 |
| Heavy Trucks:  | 57.7          | 56.3    | 47.2        | 48.5      | 56.8 | 57.0 |
| Vehicle Noise: | 65.8          | 64.1    | 61.1        | 56.3      | 64.8 | 65.3 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 97     | 209    | 450    |
| CNEL: | 48     | 104    | 225    | 485    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: b/w Portola and Arborwood      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 6,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 600 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 35 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 20 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.544                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.504                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.544                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 64.30 | -3.08        | -4.59    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 75.75 | -20.32       | -4.59    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 81.57 | -24.27       | -4.59    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.4          | 53.5    | 51.8        | 45.7      | 54.3 | 54.9 |
| Medium Trucks: | 49.6          | 48.1    | 41.8        | 40.2      | 48.7 | 48.9 |
| Heavy Trucks:  | 51.5          | 50.1    | 41.0        | 42.3      | 50.7 | 50.8 |
| Vehicle Noise: | 57.7          | 55.9    | 52.5        | 48.1      | 56.6 | 57.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 13     | 28     | 60     | 129    |
| CNEL: | 14     | 30     | 64     | 138    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: b/w Park Pl. and Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                   |       |        |  |
|--|--|---|--------|-------------------|-------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                   |       |        |  |
| Average Daily Traffic (Adt): 11,700 vehicles |  | Autos: 15                                     |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                   |       |        |  |
| Peak Hour Volume: 1,170 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening           | Night | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |   |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.14        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.38       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.33       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.0          | 62.1    | 60.4        | 54.3      | 62.9 | 63.6 |
| Medium Trucks: | 57.4          | 55.9    | 49.6        | 48.0      | 56.5 | 56.7 |
| Heavy Trucks:  | 57.5          | 56.0    | 47.0        | 48.3      | 56.6 | 56.7 |
| Vehicle Noise: | 65.6          | 63.9    | 60.9        | 56.0      | 64.6 | 65.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 44     | 94     | 202    | 436    |
| CNEL: | 47     | 101    | 218    | 469    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: n/o Bryan Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,600 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 860 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 55 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 52 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -3.48        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.72       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.67       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.7          | 60.8    | 59.0        | 53.0      | 61.6 | 62.2 |
| Medium Trucks: | 56.1          | 54.6    | 48.2        | 46.7      | 55.1 | 55.4 |
| Heavy Trucks:  | 56.1          | 54.7    | 45.7        | 46.9      | 55.3 | 55.4 |
| Vehicle Noise: | 64.3          | 62.5    | 59.6        | 54.7      | 63.2 | 63.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 35     | 76     | 165    | 355    |
| CNEL: | 38     | 82     | 177    | 382    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: n/o Trabuco Rd.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 10,000 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 1,000 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 96.607 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 96.566 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 96.608 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.82        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -20.06       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -24.02       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.4          | 61.5    | 59.7        | 53.6      | 62.3 | 62.9 |
| Medium Trucks: | 56.8          | 55.2    | 48.9        | 47.3      | 55.8 | 56.0 |
| Heavy Trucks:  | 56.8          | 55.4    | 46.3        | 47.6      | 55.9 | 56.1 |
| Vehicle Noise: | 64.9          | 63.2    | 60.2        | 55.4      | 63.9 | 64.4 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 39     | 85     | 182    | 392    |
| CNEL: | 42     | 91     | 196    | 422    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: n/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 13,400 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,340 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 50 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 50 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.871                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.830                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.871                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 70.20 | -1.14        | -4.41    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 81.00 | -18.38       | -4.41    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 85.38 | -22.33       | -4.41    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.5          | 61.6    | 59.8        | 53.7      | 62.4 | 63.0 |
| Medium Trucks: | 57.0          | 55.5    | 49.1        | 47.6      | 56.1 | 56.3 |
| Heavy Trucks:  | 57.4          | 56.0    | 47.0        | 48.2      | 56.6 | 56.7 |
| Vehicle Noise: | 65.1          | 63.4    | 60.4        | 55.6      | 64.1 | 64.6 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 41     | 87     | 188    | 405    |
| CNEL: | 44     | 94     | 202    | 435    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: s/o Walnut Av.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,100 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,210 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.99        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.23       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.19       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.2          | 62.3    | 60.5        | 54.5      | 63.1 | 63.7 |
| Medium Trucks: | 57.6          | 56.1    | 49.7        | 48.2      | 56.6 | 56.9 |
| Heavy Trucks:  | 57.6          | 56.2    | 47.2        | 48.4      | 56.8 | 56.9 |
| Vehicle Noise: | 65.8          | 64.0    | 61.1        | 56.2      | 64.7 | 65.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 45     | 96     | 207    | 445    |
| CNEL: | 48     | 103    | 222    | 479    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: b/w Deerfield Dr. and ICD      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt): 12,900 vehicles |  | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume: 1,290 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed: 55 mph                        |  | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                             |  | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 96.607                                 |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 96.566                         |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 96.608                          |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -1.72        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -18.95       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -22.91       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 64.5          | 62.6    | 60.8        | 54.8      | 63.4 | 64.0 |
| Medium Trucks: | 57.9          | 56.3    | 50.0        | 48.4      | 56.9 | 57.1 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.4        | 48.7      | 57.0 | 57.2 |
| Vehicle Noise: | 66.0          | 64.3    | 61.3        | 56.5      | 65.0 | 65.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 46     | 100    | 216    | 465    |
| CNEL: | 50     | 108    | 232    | 500    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Yale Av.      Number: 8141  
 Road Segment: b/w ICD and Yale Lp.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                     |        |                   |       |        |  |
|--|--|--|--------|-------------------|-------|--------|--|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15) |        |                   |       |        |  |
| Average Daily Traffic (Adt): 11,200 vehicles |  | Autos: 15                              |        |                   |       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15            |        |                   |       |        |  |
| Peak Hour Volume: 1,120 vehicles             |  | Heavy Trucks (3+ Axles): 15            |        |                   |       |        |  |
| Vehicle Speed: 55 mph                        |  | Vehicle Mix                            |        |                   |       |        |  |
| Near/Far Lane Distance: 52 feet              |  | VehicleType                            | Day    | Evening           | Night | Daily  |  |
| Site Data                                    |  | Autos:                                 | 77.5%  | 12.9%             | 9.6%  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                         | 84.8%  | 4.9%              | 10.3% | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                          | 86.5%  | 2.7%              | 10.8% | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)      |        |                   |       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:                                 | 2.000  |                   |       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                         | 4.000  |                   |       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                          | 8.006  | Grade Adjustment: | 0.0   |        |  |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)     |        |                   |       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:                                 | 96.607 |                   |       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                         | 96.566 |                   |       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                          | 96.608 |                   |       |        |  |
| Right View: 90.0 degrees                     |  |  |        |                   |       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 71.78 | -2.33        | -4.39    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 82.40 | -19.57       | -4.39    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 86.40 | -23.52       | -4.39    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 63.9          | 62.0    | 60.2        | 54.1      | 62.8 | 63.4 |
| Medium Trucks: | 57.2          | 55.7    | 49.4        | 47.8      | 56.3 | 56.5 |
| Heavy Trucks:  | 57.3          | 55.9    | 46.8        | 48.1      | 56.4 | 56.6 |
| Vehicle Noise: | 65.4          | 63.7    | 60.7        | 55.8      | 64.4 | 64.9 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 42     | 91     | 196    | 423    |
| CNEL: | 46     | 98     | 211    | 455    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas      Number: 8141  
 Road Segment: n/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                        |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| Highway Data                             |                | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt):             | 1,500 vehicles | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume:                        | 150 vehicles   | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                |                | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                             |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                     |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                      |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -9.68        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -26.92       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -30.87       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 51.0          | 49.1    | 47.4        | 41.3      | 49.9 | 50.5 |
| Medium Trucks: | 45.0          | 43.5    | 37.1        | 35.6      | 44.0 | 44.3 |
| Heavy Trucks:  | 46.3          | 44.9    | 35.9        | 37.1      | 45.5 | 45.6 |
| Vehicle Noise: | 53.0          | 51.3    | 48.0        | 43.5      | 52.0 | 52.5 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 6      | 14     | 29     | 63     |
| CNEL: | 7      | 15     | 31     | 68     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Thomas      Number: 8141  
 Road Segment: s/o Muirlands Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,000 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 800 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.41        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -19.65       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -23.60       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.6        | 48.6      | 57.2 | 57.8 |
| Medium Trucks: | 52.3          | 50.8    | 44.4        | 42.8      | 51.3 | 51.5 |
| Heavy Trucks:  | 53.6          | 52.2    | 43.1        | 44.4      | 52.7 | 52.9 |
| Vehicle Noise: | 60.3          | 58.6    | 55.3        | 50.7      | 59.3 | 59.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 42     | 90     | 193    |
| CNEL: | 21     | 44     | 96     | 206    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: w/o "F" St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |         |                       |        |  |
|--|--|---|--------|---------|-----------------------|--------|--|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |         |                       |        |  |
| Average Daily Traffic (Adt): 43,100 vehicles |  | Autos: 15                                     |        |         |                       |        |  |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |         |                       |        |  |
| Peak Hour Volume: 4,310 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |         |                       |        |  |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |         |                       |        |  |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening | Night                 | Daily  |  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%   | 9.6%                  | 97.42% |  |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%    | 10.3%                 | 1.84%  |  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%    | 10.8%                 | 0.74%  |  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |         |                       |        |  |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |         |                       |        |  |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |         |                       |        |  |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  |         | Grade Adjustment: 0.0 |        |  |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |         |                       |        |  |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |         |                       |        |  |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |         |                       |        |  |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |         |                       |        |  |
| Right View: 90.0 degrees                     |  |   |        |         |                       |        |  |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.14         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.09       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -18.05       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.3      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.4        | 54.9      | 63.3 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.5    | 53.5        | 54.8      | 63.1 | 63.2 |
| Vehicle Noise: | 72.5          | 70.8    | 67.9        | 62.9      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 126    | 271    | 583    | 1,257  |
| CNEL: | 135    | 292    | 628    | 1,354  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o "F" St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 71,500 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 7,150 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 60 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 92.547                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 92.504                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 92.547                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 5.34         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -11.90       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -15.85       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 73.2          | 71.4    | 69.6        | 63.5      | 72.2 | 72.8 |
| Medium Trucks: | 66.5          | 65.0    | 58.6        | 57.1      | 65.5 | 65.8 |
| Heavy Trucks:  | 66.2          | 64.7    | 55.7        | 57.0      | 65.3 | 65.4 |
| Vehicle Noise: | 74.7          | 73.0    | 70.1        | 65.1      | 73.7 | 74.2 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 176    | 379    | 818    | 1,761  |
| CNEL: | 190    | 409    | 880    | 1,897  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Irvine Bl.      Number: 8141  
 Road Segment: e/o Fairbanks      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                            |        |                       |       |        |
|--|--|---|--------|-----------------------|-------|--------|
| <b>Highway Data</b>                          |  | <b>Site Conditions (Hard = 10, Soft = 15)</b> |        |                       |       |        |
| Average Daily Traffic (Adt): 43,700 vehicles |  | Autos: 15                                     |        |                       |       |        |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15                   |        |                       |       |        |
| Peak Hour Volume: 4,370 vehicles             |  | Heavy Trucks (3+ Axles): 15                   |        |                       |       |        |
| Vehicle Speed: 60 mph                        |  | <b>Vehicle Mix</b>                            |        |                       |       |        |
| Near/Far Lane Distance: 76 feet              |  | VehicleType                                   | Day    | Evening               | Night | Daily  |
| <b>Site Data</b>                             |  | Autos:  | 77.5%  | 12.9%                 | 9.6%  | 97.42% |
| Barrier Height: 0.0 feet                     |  | Medium Trucks:                                | 84.8%  | 4.9%                  | 10.3% | 1.84%  |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks:                                 | 86.5%  | 2.7%                  | 10.8% | 0.74%  |
| Centerline Dist. to Barrier: 100.0 feet      |  | <b>Noise Source Elevations (in feet)</b>      |        |                       |       |        |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos:  | 2.000  |                       |       |        |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks:                                | 4.000  |                       |       |        |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks:                                 | 8.006  | Grade Adjustment: 0.0 |       |        |
| Pad Elevation: 0.0 feet                      |  | <b>Lane Equivalent Distance (in feet)</b>     |        |                       |       |        |
| Road Elevation: 0.0 feet                     |  | Autos:  | 92.547 |                       |       |        |
| Road Grade: 0.0%                             |  | Medium Trucks:                                | 92.504 |                       |       |        |
| Left View: -90.0 degrees                     |  | Heavy Trucks:                                 | 92.547 |                       |       |        |
| Right View: 90.0 degrees                     |  |   |        |                       |       |        |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 73.22 | 3.20         | -4.11    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 83.68 | -14.03       | -4.11    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 87.33 | -17.99       | -4.11    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 71.1          | 69.2    | 67.4        | 61.4      | 70.0 | 70.6 |
| Medium Trucks: | 64.3          | 62.8    | 56.5        | 54.9      | 63.4 | 63.6 |
| Heavy Trucks:  | 64.0          | 62.6    | 53.6        | 54.8      | 63.2 | 63.3 |
| Vehicle Noise: | 72.6          | 70.8    | 67.9        | 63.0      | 71.5 | 72.0 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 127    | 273    | 589    | 1,268  |
| CNEL: | 137    | 294    | 634    | 1,366  |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Number: 8141  
 Road Segment: e/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 8,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 810 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -2.35        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -19.59       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -23.55       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.3          | 56.4    | 54.7        | 48.6      | 57.2 | 57.9 |
| Medium Trucks: | 52.3          | 50.8    | 44.4        | 42.9      | 51.4 | 51.6 |
| Heavy Trucks:  | 53.6          | 52.2    | 43.2        | 44.4      | 52.8 | 52.9 |
| Vehicle Noise: | 60.4          | 58.6    | 55.3        | 50.8      | 59.3 | 59.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 42     | 90     | 194    |
| CNEL: | 21     | 45     | 97     | 208    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Number: 8141  
 Road Segment: w/o Alton Pkwy.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 5,800 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 580 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| <b>Barrier Height:</b> 0.0 feet          |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -4.32        | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -21.56       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -25.51       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 58.4          | 56.5    | 54.8        | 48.7      | 57.3 | 57.9 |
| Medium Trucks: | 52.2          | 50.7    | 44.3        | 42.8      | 51.2 | 51.5 |
| Heavy Trucks:  | 53.0          | 51.6    | 42.6        | 43.8      | 52.2 | 52.3 |
| Vehicle Noise: | 60.3          | 58.5    | 55.4        | 50.7      | 59.2 | 59.7 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 19     | 41     | 89     | 192    |
| CNEL: | 21     | 44     | 95     | 206    |



# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Number: 8141  
 Road Segment: s/o Astor St.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |                | NOISE MODEL INPUTS                            |     |         |       |       |
|--|----------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |                | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 4,100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%            | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 410 vehicles   | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 40 mph         | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 12 feet        | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |                | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |                | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |                | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |                | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |                | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |                | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |                | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |                | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |                | Autos: 99.865                                 |     |         |       |       |
| Road Grade: 0.0%                         |                | Medium Trucks: 99.825                         |     |         |       |       |
| Left View: -90.0 degrees                 |                | Heavy Trucks: 99.865                          |     |         |       |       |
| Right View: 90.0 degrees                 |                |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | -5.31        | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -22.55       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -26.51       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 55.4          | 53.5    | 51.7        | 45.7      | 54.3 | 54.9 |
| Medium Trucks: | 49.4          | 47.8    | 41.5        | 39.9      | 48.4 | 48.6 |
| Heavy Trucks:  | 50.7          | 49.3    | 40.2        | 41.5      | 49.8 | 50.0 |
| Vehicle Noise: | 57.4          | 55.7    | 52.4        | 47.8      | 56.4 | 56.8 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 12     | 27     | 57     | 123    |
| CNEL: | 13     | 28     | 61     | 132    |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Number: 8141  
 Road Segment: n/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                 |              | NOISE MODEL INPUTS                            |     |         |       |       |
|--|--------------|---|-----|---------|-------|-------|
| <b>Highway Data</b>                      |              | <b>Site Conditions (Hard = 10, Soft = 15)</b> |     |         |       |       |
| Average Daily Traffic (Adt):             | 100 vehicles | Autos: 15                                     |     |         |       |       |
| Peak Hour Percentage:                    | 10%          | Medium Trucks (2 Axles): 15                   |     |         |       |       |
| Peak Hour Volume:                        | 10 vehicles  | Heavy Trucks (3+ Axles): 15                   |     |         |       |       |
| Vehicle Speed:                           | 45 mph       | <b>Vehicle Mix</b>                            |     |         |       |       |
| Near/Far Lane Distance:                  | 36 feet      | VehicleType                                   | Day | Evening | Night | Daily |
| <b>Site Data</b>                         |              | Autos: 77.5% 12.9% 9.6% 97.42%                |     |         |       |       |
| Barrier Height: 0.0 feet                 |              | Medium Trucks: 84.8% 4.9% 10.3% 1.84%         |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0       |              | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%          |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet  |              | <b>Noise Source Elevations (in feet)</b>      |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet |              | Autos: 2.000                                  |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet   |              | Medium Trucks: 4.000                          |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet    |              | Heavy Trucks: 8.006 Grade Adjustment: 0.0     |     |         |       |       |
| Pad Elevation: 0.0 feet                  |              | <b>Lane Equivalent Distance (in feet)</b>     |     |         |       |       |
| Road Elevation: 0.0 feet                 |              | Autos: 98.412                                 |     |         |       |       |
| Road Grade: 0.0%                         |              | Medium Trucks: 98.372                         |     |         |       |       |
| Left View: -90.0 degrees                 |              | Heavy Trucks: 98.413                          |     |         |       |       |
| Right View: 90.0 degrees                 |              |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 68.46 | -21.95       | -4.51    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 79.45 | -39.19       | -4.51    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 84.25 | -43.15       | -4.51    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 40.8          | 38.9    | 37.1        | 31.1      | 39.7 | 40.3 |
| Medium Trucks: | 34.5          | 33.0    | 26.7        | 25.1      | 33.6 | 33.8 |
| Heavy Trucks:  | 35.4          | 34.0    | 24.9        | 26.2      | 34.5 | 34.7 |
| Vehicle Noise: | 42.6          | 40.9    | 37.7        | 33.1      | 41.6 | 42.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 1      | 3      | 6      | 13     |
| CNEL: | 1      | 3      | 6      | 14     |

# FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Post 2030 - 2012 Modified Project (Option 2)      Project Name: 2012 Great Park GPA/ZC  
 Road Name: Fairbanks      Number: 8141  
 Road Segment: w/o Irvine Bl.      Analyst: B. Lawson

| SITE SPECIFIC INPUT DATA                     |  | NOISE MODEL INPUTS                        |     |         |       |       |
|--|--|---|-----|---------|-------|-------|
| Highway Data                                 |  | Site Conditions (Hard = 10, Soft = 15)    |     |         |       |       |
| Average Daily Traffic (Adt): 21,800 vehicles |  | Autos: 15                                 |     |         |       |       |
| Peak Hour Percentage: 10%                    |  | Medium Trucks (2 Axles): 15               |     |         |       |       |
| Peak Hour Volume: 2,180 vehicles             |  | Heavy Trucks (3+ Axles): 15               |     |         |       |       |
| Vehicle Speed: 40 mph                        |  | Vehicle Mix                               |     |         |       |       |
| Near/Far Lane Distance: 12 feet              |  | VehicleType                               | Day | Evening | Night | Daily |
| Site Data                                    |  | Autos: 77.5% 12.9% 9.6% 97.42%            |     |         |       |       |
| Barrier Height: 0.0 feet                     |  | Medium Trucks: 84.8% 4.9% 10.3% 1.84%     |     |         |       |       |
| Barrier Type (0-Wall, 1-Berm): 0.0           |  | Heavy Trucks: 86.5% 2.7% 10.8% 0.74%      |     |         |       |       |
| Centerline Dist. to Barrier: 100.0 feet      |  | Noise Source Elevations (in feet)         |     |         |       |       |
| Centerline Dist. to Observer: 100.0 feet     |  | Autos: 2.000                              |     |         |       |       |
| Barrier Distance to Observer: 0.0 feet       |  | Medium Trucks: 4.000                      |     |         |       |       |
| Observer Height (Above Pad): 5.0 feet        |  | Heavy Trucks: 8.006 Grade Adjustment: 0.0 |     |         |       |       |
| Pad Elevation: 0.0 feet                      |  | Lane Equivalent Distance (in feet)        |     |         |       |       |
| Road Elevation: 0.0 feet                     |  | Autos: 99.865                             |     |         |       |       |
| Road Grade: 0.0%                             |  | Medium Trucks: 99.825                     |     |         |       |       |
| Left View: -90.0 degrees                     |  | Heavy Trucks: 99.865                      |     |         |       |       |
| Right View: 90.0 degrees                     |  |   |     |         |       |       |

## FHWA Noise Model Calculations

| VehicleType    | REMEL | Traffic Flow | Distance | Finite Road | Fresnel | Barrier Atten | Berm Atten |
|----------------|-------|--------------|----------|-------------|---------|---------------|------------|
| Autos:         | 66.51 | 1.95         | -4.61    | -1.20       | -4.87   | 0.000         | 0.000      |
| Medium Trucks: | 77.72 | -15.29       | -4.61    | -1.20       | -4.97   | 0.000         | 0.000      |
| Heavy Trucks:  | 82.99 | -19.25       | -4.61    | -1.20       | -5.16   | 0.000         | 0.000      |

## Unmitigated Noise Levels (without Topo and barrier attenuation)

| VehicleType    | Leq Peak Hour | Leq Day | Leq Evening | Leq Night | Ldn  | CNEL |
|----------------|---------------|---------|-------------|-----------|------|------|
| Autos:         | 62.6          | 60.7    | 59.0        | 52.9      | 61.5 | 62.2 |
| Medium Trucks: | 56.6          | 55.1    | 48.7        | 47.2      | 55.7 | 55.9 |
| Heavy Trucks:  | 57.9          | 56.5    | 47.5        | 48.7      | 57.1 | 57.2 |
| Vehicle Noise: | 64.7          | 62.9    | 59.6        | 55.1      | 63.6 | 64.1 |

## Centerline Distance to Noise Contour (in feet)

|       | 70 dBA | 65 dBA | 60 dBA | 55 dBA |
|-------|--------|--------|--------|--------|
| Ldn:  | 38     | 81     | 175    | 376    |
| CNEL: | 40     | 87     | 187    | 403    |

## **APPENDIX 8.1**

### Roadway Construction Noise Model (RCNM) Database



U.S. Department  
of Transportation

**Federal Highway  
Administration**

FHWA-HEP-05-054  
DOT-VNTSC-FHWA-05-01

# **FHWA**

## **Roadway Construction Noise Model**

### **User's Guide**

**Final Report**  
January 2006



Prepared for  
U.S. Department of Transportation  
Federal Highway Administration  
Office of Natural and Human Environment  
Washington, DC 20590

Prepared by  
U.S. Department of Transportation  
Research and Innovative Technology Administration  
John A. Volpe National Transportation Systems Center  
Acoustics Facility  
Cambridge, MA 02142

**Table 1.** CA/T equipment noise emissions and acoustical usage factors database.

| <b>CA/T Noise Emission Reference Levels and Usage Factors</b> |          |                          |                             |                                |                               |
|---|----------|--------------------------|-----------------------------|--------------------------------|-------------------------------|
| filename: EQUIPLST.xls  |          |                          |                             |                                |                               |
| revised: 7/26/05  |          |                          |                             |                                |                               |
|   | Impact   | Acoustical<br>Use Factor | Spec 721.560<br>Lmax @ 50ft | Actual Measured<br>Lmax @ 50ft | No. of Actual<br>Data Samples |
| Equipment Description   | Device ? | (%)                      | (dBA, slow)                 | (dBA, slow)                    | (Count)                       |
|   |          |                          |                             | (samples averaged)             |                               |
| All Other Equipment > 5 HP                                    | No       | 50                       | 85                          | -- N/A --                      | 0                             |
| Auger Drill Rig   | No       | 20                       | 85                          | 84                             | 36                            |
| Backhoe   | No       | 40                       | 80                          | 78                             | 372                           |
| Bar Bender  | No       | 20                       | 80                          | -- N/A --                      | 0                             |
| Blasting  | Yes      | -- N/A --                | 94                          | -- N/A --                      | 0                             |
| Boring Jack Power Unit  | No       | 50                       | 80                          | 83                             | 1                             |
| Chain Saw   | No       | 20                       | 85                          | 84                             | 46                            |
| Clam Shovel (dropping)  | Yes      | 20                       | 93                          | 87                             | 4                             |
| Compactor (ground)  | No       | 20                       | 80                          | 83                             | 57                            |
| Compressor (air)  | No       | 40                       | 80                          | 78                             | 18                            |
| Concrete Batch Plant  | No       | 15                       | 83                          | -- N/A --                      | 0                             |
| Concrete Mixer Truck  | No       | 40                       | 85                          | 79                             | 40                            |
| Concrete Pump Truck   | No       | 20                       | 82                          | 81                             | 30                            |
| Concrete Saw  | No       | 20                       | 90                          | 90                             | 55                            |
| Crane   | No       | 16                       | 85                          | 81                             | 405                           |
| Dozer   | No       | 40                       | 85                          | 82                             | 55                            |
| Drill Rig Truck   | No       | 20                       | 84                          | 79                             | 22                            |
| Drum Mixer  | No       | 50                       | 80                          | 80                             | 1                             |
| Dump Truck  | No       | 40                       | 84                          | 76                             | 31                            |
| Excavator   | No       | 40                       | 85                          | 81                             | 170                           |
| Flat Bed Truck  | No       | 40                       | 84                          | 74                             | 4                             |
| Front End Loader  | No       | 40                       | 80                          | 79                             | 96                            |
| Generator   | No       | 50                       | 82                          | 81                             | 19                            |
| Generator (<25KVA, VMS signs)                                 | No       | 50                       | 70                          | 73                             | 74                            |
| Gradall   | No       | 40                       | 85                          | 83                             | 70                            |
| Grader  | No       | 40                       | 85                          | -- N/A --                      | 0                             |
| Grapple (on backhoe)  | No       | 40                       | 85                          | 87                             | 1                             |
| Horizontal Boring Hydr. Jack                                  | No       | 25                       | 80                          | 82                             | 6                             |
| Hydra Break Ram   | Yes      | 10                       | 90                          | -- N/A --                      | 0                             |
| Impact Pile Driver  | Yes      | 20                       | 95                          | 101                            | 11                            |
| Jackhammer  | Yes      | 20                       | 85                          | 89                             | 133                           |
| Man Lift  | No       | 20                       | 85                          | 75                             | 23                            |
| Mounted Impact Hammer (hoe ram)                               | Yes      | 20                       | 90                          | 90                             | 212                           |
| Pavement Scarafier  | No       | 20                       | 85                          | 90                             | 2                             |
| Paver   | No       | 50                       | 85                          | 77                             | 9                             |
| Pickup Truck  | No       | 40                       | 55                          | 75                             | 1                             |
| Pneumatic Tools   | No       | 50                       | 85                          | 85                             | 90                            |
| Pumps   | No       | 50                       | 77                          | 81                             | 17                            |
| Refrigerator Unit   | No       | 100                      | 82                          | 73                             | 3                             |
| Rivit Buster/chipping gun                                     | Yes      | 20                       | 85                          | 79                             | 19                            |
| Rock Drill  | No       | 20                       | 85                          | 81                             | 3                             |
| Roller  | No       | 20                       | 85                          | 80                             | 16                            |
| Sand Blasting (Single Nozzle)                                 | No       | 20                       | 85                          | 96                             | 9                             |
| Scraper   | No       | 40                       | 85                          | 84                             | 12                            |
| Shears (on backhoe)   | No       | 40                       | 85                          | 96                             | 5                             |
| Slurry Plant  | No       | 100                      | 78                          | 78                             | 1                             |
| Slurry Trenching Machine                                      | No       | 50                       | 82                          | 80                             | 75                            |
| Soil Mix Drill Rig  | No       | 50                       | 80                          | -- N/A --                      | 0                             |
| Tractor   | No       | 40                       | 84                          | -- N/A --                      | 0                             |
| Vacuum Excavator (Vac-truck)                                  | No       | 40                       | 85                          | 85                             | 149                           |
| Vacuum Street Sweeper   | No       | 10                       | 80                          | 82                             | 19                            |
| Ventilation Fan   | No       | 100                      | 85                          | 79                             | 13                            |
| Vibrating Hopper  | No       | 50                       | 85                          | 87                             | 1                             |
| Vibratory Concrete Mixer                                      | No       | 20                       | 80                          | 80                             | 1                             |
| Vibratory Pile Driver   | No       | 20                       | 95                          | 101                            | 44                            |
| Warning Horn  | No       | 5                        | 85                          | 83                             | 12                            |
| Welder / Torch  | No       | 40                       | 73                          | 74                             | 5                             |

## **APPENDIX 8.2**

### Construction Related Noise Impact Calculations

**Table 8.2\_1****Demolition Construction Noise Levels<sup>1</sup>**

| Equipment Type                        | Quantity | Usage Factor <sup>2</sup> | Hours Of Operation <sup>3</sup> | Reference Noise Level @ 50 Feet (dBA) | Cumulative Level @ 50 Feet (dBA) |
|---------------------------------------|----------|---------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Concrete/Industrial Saws              | 2        | 73%                       | 5.8                             | 90.0                                  | 91.6                             |
| Excavators                            | 6        | 57%                       | 4.6                             | 85.0                                  | 90.3                             |
| Rubber Tire Dozers                    | 4        | 59%                       | 4.7                             | 79.0                                  | 82.7                             |
| Cumulative Noise Levels 50 Feet (dBA) |          |                           |                                 |                                       | 94.4                             |

| Nearest Receptor Location | Distance From Noise Source (In Feet) <sup>4</sup> | Noise Reduction Due To Distance (dBA) | Construction Noise Level (dBA) |
|---------------------------|---|---------------------------------------|--------------------------------|
| Residential Uses          | 100   | -6.0                                  | 88.3                           |

<sup>1</sup> Source: FHWA's Roadway Construction Noise Model, January 2006.

<sup>2</sup> Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

<sup>3</sup> Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

<sup>4</sup> Distance from the nearest point of construction activity to the nearest receiver.



**Table 8.2\_2****Site Preparation Construction Noise Levels<sup>1</sup>**

| Equipment Type                        | Quantity | Usage Factor <sup>2</sup> | Hours Of Operation <sup>3</sup> | Reference Noise Level @ 50 Feet (dBA) | Cumulative Level @ 50 Feet (dBA) |
|---------------------------------------|----------|---------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Rubber Tire Dozers                    | 6        | 59%                       | 4.7                             | 79.0                                  | 84.5                             |
| Tractors/Loaders/Backhoes             | 8        | 55%                       | 4.4                             | 80.0                                  | 86.4                             |
| Cumulative Noise Levels 50 Feet (dBA) |          |                           |                                 |                                       | 88.6                             |

| Nearest Receptor Location | Distance From Noise Source (In Feet) <sup>4</sup> | Noise Reduction Due To Distance (dBA) | Construction Noise Level (dBA) |
|---------------------------|---|---------------------------------------|--------------------------------|
| Residential Uses          | 100   | -6.0                                  | 82.6                           |

<sup>1</sup> Source: FHWA's Roadway Construction Noise Model, January 2006.

<sup>2</sup> Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

<sup>3</sup> Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

<sup>4</sup> Distance from the nearest point of construction activity to the nearest receiver.

**Table 8.2\_3****Grading Construction Noise Levels<sup>1</sup>**

| Equipment Type                        | Quantity | Usage Factor <sup>2</sup> | Hours Of Operation <sup>3</sup> | Reference Noise Level @ 50 Feet (dBA) | Cumulative Level @ 50 Feet (dBA) |
|---------------------------------------|----------|---------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Excavators                            | 6        | 57%                       | 4.6                             | 85.0                                  | 90.3                             |
| Graders                               | 3        | 61%                       | 4.9                             | 85.0                                  | 87.6                             |
| Rubber Tire Dozers                    | 3        | 59%                       | 4.7                             | 79.0                                  | 81.5                             |
| Scrapers                              | 6        | 72%                       | 5.8                             | 85.0                                  | 91.4                             |
| Tractors/Loaders/Backhoes             | 6        | 55%                       | 4.4                             | 80.0                                  | 85.2                             |
| Cumulative Noise Levels 50 Feet (dBA) |          |                           |                                 |                                       | 95.4                             |

| Nearest Receptor Location | Distance From Noise Source (In Feet) <sup>4</sup> | Noise Reduction Due To Distance (dBA) | Construction Noise Level (dBA) |
|---------------------------|---|---------------------------------------|--------------------------------|
| Residential Uses          | 100   | -6.0                                  | 89.4                           |

<sup>1</sup> Source: FHWA's Roadway Construction Noise Model, January 2006.

<sup>2</sup> Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

<sup>3</sup> Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

<sup>4</sup> Distance from the nearest point of construction activity to the nearest receiver.

**Table 8.2\_4****Paving Construction Noise Levels<sup>1</sup>**

| Equipment Type                        | Quantity | Usage Factor <sup>2</sup> | Hours Of Operation <sup>3</sup> | Reference Noise Level @ 50 Feet (dBA) | Cumulative Level @ 50 Feet (dBA) |
|---------------------------------------|----------|---------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Pavers                                | 6        | 62%                       | 5.0                             | 77.0                                  | 82.7                             |
| Paving Equipment                      | 6        | 53%                       | 4.2                             | 77.0                                  | 82.0                             |
| Rollers                               | 6        | 56%                       | 4.5                             | 80.0                                  | 85.3                             |
| Cumulative Noise Levels 50 Feet (dBA) |          |                           |                                 |                                       | 88.3                             |

| Nearest Receptor Location | Distance From Noise Source (In Feet) <sup>4</sup> | Noise Reduction Due To Distance (dBA) | Construction Noise Level (dBA) |
|---------------------------|---|---------------------------------------|--------------------------------|
| Residential Uses          | 100   | -6.0                                  | 82.3                           |

<sup>1</sup> Source: FHWA's Roadway Construction Noise Model, January 2006.

<sup>2</sup> Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

<sup>3</sup> Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

<sup>4</sup> Distance from the nearest point of construction activity to the nearest receiver.

**Table 8.2\_5****Construction And Coating Noise Levels<sup>1</sup>**

| Equipment Type                        | Quantity | Usage Factor <sup>2</sup> | Hours Of Operation <sup>3</sup> | Reference Noise Level @ 50 Feet (dBA) | Cumulative Level @ 50 Feet (dBA) |
|---------------------------------------|----------|---------------------------|---------------------------------|---------------------------------------|----------------------------------|
| Cranes                                | 4        | 43%                       | 3.0                             | 81.0                                  | 82.8                             |
| Forklifts                             | 12       | 30%                       | 2.4                             | 75.0                                  | 80.6                             |
| Generators Sets                       | 4        | 74%                       | 5.9                             | 82.0                                  | 86.7                             |
| Tractors/Loaders/Backhoes             | 12       | 55%                       | 3.9                             | 80.0                                  | 87.6                             |
| Welders                               | 4        | 45%                       | 3.6                             | 73.0                                  | 75.6                             |
| Air Compressors                       | 4        | 48%                       | 3.8                             | 82.0                                  | 84.8                             |
| Cumulative Noise Levels 50 Feet (dBA) |          |                           |                                 |                                       | 92.3                             |

| Nearest Receptor Location | Distance From Noise Source (In Feet) <sup>4</sup> | Noise Reduction Due To Distance (dBA) | Construction Noise Level (dBA) |
|---------------------------|---|---------------------------------------|--------------------------------|
| Residential Uses          | 100   | -6.0                                  | 86.3                           |

<sup>1</sup> Source: FHWA's Roadway Construction Noise Model, January 2006.

<sup>2</sup> Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

<sup>3</sup> Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

<sup>4</sup> Distance from the nearest point of construction activity to the nearest receiver.

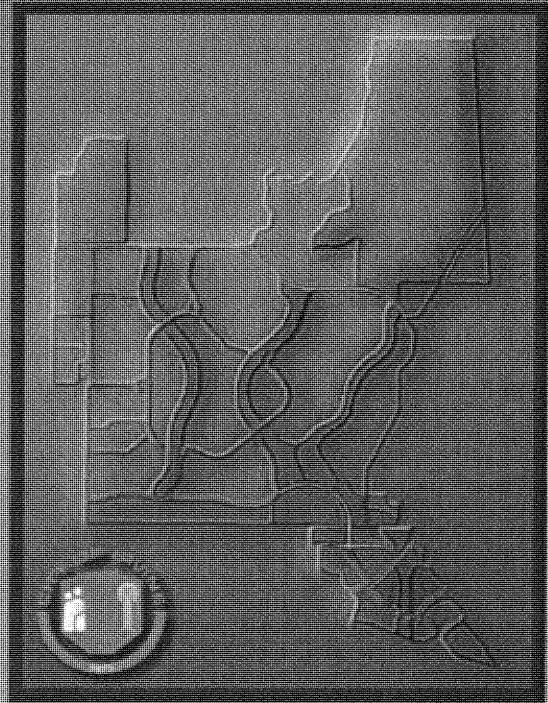
## **APPENDIX 13.1**

### Reference Materials

FINAL

ENVIRONMENTAL IMPACT REPORT  
VOLUME I

ORANGE COUNTY GREAT PARK



FILE NOS: 47782-GA  
47785-ZC

SCH# 2002101020

CERTIFIED MAY 27, 2003  
IRVINE CITY COUNCIL RESOLUTION NO. 03-60

CITY OF IRVINE



Cotton/Bridges Associates  
*A Division of P&D Consultants*

Final

Program Environmental Impact Report  
Volume I

for the

Orange County Great Park  
(Annexation, General Plan Amendment, Zoning  
and Related Actions)

File Nos: 47782-GA  
47785-ZC

SCH# 2002101020

Certified May 27, 2003  
Irvine City Council Resolution No. 03-60

**City of Irvine**  
Community Development Department  
One Civic Center Plaza  
Irvine, California 92623-9575  
Contact: Glen Worthington  
(949) 724-6370

048178037.0003

## 5.4 Noise

An environmental noise assessment to determine the potential noise impacts of the proposed project prepared by Black and Veatch Corporation is provided as Appendix H in Volume II of this Final Program EIR. The report is summarized below and provides the basis for determining projects impacts.

### Acoustical Terminology

#### Definitions

Sound is generated by the propagation of energy in the form of pressure waves. Being a wave phenomenon, sound is characterized by amplitude (sound level) and frequency (pitch). Sound amplitude is measured in decibels (dB) and sound frequency is measured in hertz (Hz). The decibel is the logarithmic ratio of a sound pressure to a reference sound pressure. Typically, zero dB corresponds to the threshold of human hearing. For reference, the sound pressure levels associated with common noise sources are shown in Figure 5.4-1. The standard unit of measure for frequency is Hz (cycles per second). The typical human ear can hear frequencies ranging from 20 Hz to 20,000 Hz.

At typical sound pressure levels, the human ear is more sensitive to sounds in the middle and high frequencies (1,000 to 8,000 Hz) than sounds in the low frequencies. Various weighting networks have been developed to simulate the frequency response of the human ear. The A-weighting network was developed to simulate the frequency response of the human ear to sounds at typical environmental levels. The A-weighting network emphasizes sounds in the middle to high frequencies and de-emphasizes sounds in the low frequencies. Most sound level instruments can apply these weighting networks automatically. Any sound level to which the A-weighting network has been applied is expressed in A-weighted decibels (dBA) and most community noise standards are expressed in decibels on the dBA scale. Noise levels of common sounds in the environment include office background noise at about 50 dBA, human speech at 10 feet (ft) at about 60-70 dBA, cars driving by at 50 feet at 65-70 dBA, trucks at 50ft at 75-80 dBA, and aircraft overflights a mile from the approach at about 95-100 dBA. Table 5.4-1 shows typical sound levels according to the A-weighted decibel scale.

People are exposed to sound on a daily basis. Sound is perceived as a normal part of the natural environment. People quickly adapt to most everyday sounds and barely notice its presence. Other sounds can be annoying or disturbing. For purposes of environmental assessment, noise is defined as unwanted sound. Noise in the urban environment typically is produced by transportation activities and stationary activities. Transportation noise includes noise from automobile and truck traffic, trains and airplanes. Stationary noise sources typically include heating, ventilation and air conditioning systems, manufacturing activities, industrial equipment, entertainment activities, yard care equipment, and outdoor activities. Stationary sources of a temporary nature include construction activities and agricultural operations.





REFERENCE 2

41 Corporate Park, Suite 300  
Irvine, CA 92606

Prepared by:

John Kain, AICP  
Marlie Whiteman, PE  
Beth Dennis  
Charlene Hwang, PE  
Ina Cover

**GREAT PARK NEIGHBORHOODS  
GENERAL PLAN AMENDMENT / ZONE CHANGE  
AND VTTM 17008 AMENDMENT**

**TRAFFIC IMPACT ANALYSIS**

**May 9, 2011**

**JN:07151-02 Prelim Rpt  
JK:MW:BD:IC:rd**

## **ENVIRONMENTAL NOISE ASSESSMENT**

*Orange County Great Park Plan*  
**City of Irvine General Plan Amendment, Pre-zoning,  
and Annexation**

**January 16, 2002**

*Prepared for:*  
**City of Irvine, California**

## **6.2 Impacts Related to Post-Construction Project Use**

Post-construction project impacts include those noise impacts due to the operation and occupancy of the various land uses proposed for the project site. Noise sources include vehicle traffic generated by the project and stationary sources associated with the project land uses, such as commercial uses, and transportation facility uses. Noise impacts due to traffic generated by the project can be evaluated quantitatively by utilizing traffic volume studies. However, since the exact type, amount, and location of the project stationary noise sources are undetermined at this time, impacts due to stationary noise sources can only be evaluated qualitatively.

### **6.2.1 Project Generated Traffic**

Traffic generated by the proposed project will influence the traffic noise levels in the surrounding areas. To quantify the traffic noise impact on the surrounding areas, the changes in traffic noise along the existing and proposed roadways surrounding the project site were determined based on the change in the average daily traffic volumes. The following traffic noise analyses are based on the traffic data presented in the *Orange County Great Park General Plan Amendment and Zone Change Traffic Impact Analysis* developed by Urban Crossroads, Inc. dated November 14, 2002 [Reference 17].

#### **6.2.1.1 Traffic Noise Analysis Methodology**

Under CEQA, consideration must be given to the magnitude of the increase and the existence of noise sensitive receptors in order to determine if the noise increase is a significant adverse environmental effect. Since CEQA does not define the magnitude of a significant increase, other applicable sources must be referenced. In general, a noise level increase of 3 dB is typically considered just barely perceptible while an increase of 5 dB is typically considered clearly noticeable [Reference 18]. CALTRANS defines a noise increase as substantial when the predicted noise levels with the project exceed the existing noise levels by 12 dB [Reference 8]. Additionally, CALTRANS has established a screening procedure that recommends further detailed traffic noise analysis when the ratio of the existing and future traffic volumes indicates a noise level increase equal to or greater than 3 dB [Reference 19]. In addition, Lake Forest has recently developed a document titled *CEQA Significance Thresholds Guide* which provides guidance for the preparation of environmental documents [Reference 20]. The guide specifies that traffic

noise is significant if the project causes a noise increase of 3 dB or more near a sensitive receptor and if the “future with project” noise level exceeds 65 dB CNEL.

Based on these standards and guidelines, this traffic noise screening analysis identified all project-related traffic noise level increases greater than 1.5 dB. This trigger level was established to remain conservative in comparison to the standards and guidelines discussed above. All project-related traffic noise level increases greater than 1.5 dB within residential areas were identified for further detailed traffic noise analysis.

#### **6.2.1.2 Traffic Noise Increase**

Table B-1 of Appendix B lists the changes in traffic noise for the Base Plan with and without the project for interim years 2007 and 2025 and for build-out year post-2025. Table B-2 shows similar data for the Overlay Plan. The future traffic noise level change is represented as 10 times the logarithm of the ratio of the future traffic volume to the existing traffic volume. The traffic noise change due solely to the project is the difference between the future change with and without the project. A negative change indicates a decrease in the traffic noise level and a positive change indicates an increase in the traffic noise level.

As shown in Table B-1 (Base Plan), the increase in the traffic noise levels due solely to the project-generated traffic ranges from -4.6 dB to 9.8 dB in the interim year 2007, -10.0 dB to 13.3 dB in the interim year 2025, and -1.7 dB to 13.1 dB in the build-out year post-2025. Specifically, eight roadway segments listed in Table B-1 are predicted to experience a traffic noise level increase greater than 1.5 dB due to the project in either the interim years 2007 and 2025 or in the build-out year post-2025. These roadway segments include the following.

##### **Year 2007**

- Trabuco Road from Jeffery Road to Sand Canyon Avenue
- Marine Way
- Jeronimo Road from Alton Parkway to Bake Parkway
- Barranca Parkway from Technology Drive to Alton Parkway
- Rockfield Boulevard from Bake Parkway to Lake Forest Drive
- Toledo Way from Alton Parkway to Bake Parkway

##### **Year 2025**

- Marine Way
- Jeronimo Road from Alton Parkway to Bake Parkway

# **HIGHWAY TRAFFIC NOISE ANALYSIS AND ABATEMENT POLICY AND GUIDANCE**

by

U.S. Department of Transportation  
Federal Highway Administration  
Office of Environment and Planning  
Noise and Air Quality Branch  
Washington, D.C.  
June 1995

The law requires promulgation of traffic noise-level criteria for various land use activities. The law further provides that FHWA not approve the plans and specifications for a federally aided highway project unless the project includes adequate noise abatement measures to comply with the standards. The FHWA has developed and implemented regulations for the mitigation of highway traffic noise in federally-aided highway projects.

The FHWA regulations for mitigation of highway traffic noise in the planning and design of federally aided highways are contained in 23 CFR 772. The regulations require the following during the planning and design of a highway project: (1) identification of traffic noise impacts; (2) examination of potential mitigation measures; (3) the incorporation of reasonable and feasible noise mitigation measures into the highway project; and (4) coordination with local officials to provide helpful information on compatible land use planning and control. The regulations contain noise abatement criteria which represent the upper limit of acceptable highway traffic noise for different types of land uses and human activities. The regulations do not require that the abatement criteria be met in every instance. Rather, they require that every reasonable and feasible effort be made to provide noise mitigation when the criteria are approached or exceeded. Compliance with the noise regulations is a prerequisite for the granting of Federal-aid highway funds for construction or reconstruction of a highway.

## NOISE FUNDAMENTALS

As we all know, sound is created when an object moves; the rustling of leaves as the wind blows, the air passing through our vocal chords, the almost invisible movement of the speakers on a stereo. The movements cause vibrations of the molecules in air to move in waves like ripples on water. When the vibrations reach our ears, we hear what we call sound.

Noise is defined as unwanted sound. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. Sound is composed of various frequencies, but the human ear does not respond to all frequencies. Frequencies to which the human ear does not respond must be filtered out when measuring highway noise levels. Sound-level meters are usually equipped with weighting circuits which filter out selected frequencies. It has been found that the A-scale on a sound-level meter best approximates the frequency response of the human ear. Sound pressure levels measured on the A-scale of a sound meter are abbreviated dBA.

In addition to noise varying in frequency, noise intensity fluctuates with time. In the past few years, there has been a definite trend toward the use of the equivalent (energy-average) sound level as the descriptor of environmental noise in the U.S. The equivalent sound level is the steady-state, A-weighted sound level which contains the same amount of acoustic energy as the actual time-varying, A-weighted sound level over a specified period of time. If the time period is 1 hour, the descriptor is the hourly equivalent sound level,  $L_{eq}(h)$ , which is widely used by SHAs as a descriptor of traffic noise. An additional descriptor, which is sometimes used, is the  $L_{10}$ . This is simply the A-weighted sound level that is exceeded 10 percent of the time.

A few general relationships may be helpful at this time in understanding sound generation and propagation. First, as already mentioned above, decibels are logarithmic units. Consequently, sound levels cannot be added by ordinary arithmetic means. A chart for decibel addition is shown in Table 1. From this table it can be seen that the sound pressure level from two equal sources is 3 dB greater than the sound pressure level of just one source. Therefore, two trucks producing 90 dB each will combine to produce 93 dB, not 180 dB. In other words, a doubling of the noise source produces only a 3 dB increase in the sound pressure level. Studies have shown that this increase is barely detectable by the human ear.

| Table 3: Decibel Changes, Loudness, and Energy Loss |                            |                             |
|---|----------------------------|-----------------------------|
| <u>Sound Level Change</u>                           | <u>Relative Loudness</u>   | <u>Acoustic Energy Loss</u> |
| 0 dBA   | Reference                  | 0                           |
| -3 dBA  | Barely Perceptible Change  | 50%                         |
| -5 dBA  | Readily Perceptible Change | 67%                         |
| -10 dBA   | Half as Loud               | 90%                         |
| -20 dBA   | 1/4 as Loud                | 99%                         |
| -30 dBA   | 1/8 as Loud                | 99.9%                       |

| Table 4: Rules for Combining Sound Levels by "Decibel Addition"  |  |
|--|--|
| For noise levels known or desired to an accuracy or $\pm 1$ decibel (acceptable for traffic noise analyses): |  |
| When two decibel values differ by  | Add the following amount to the higher value |
| 0 or 1 dB  | 3 dB   |
| 2 or 3 dB  | 2 dB   |
| 4 to 9 dB  | 1 dB   |
| 10 dB or more  | 0 dB   |

Secondly, an increase or decrease of 10 dB in the sound pressure level will be perceived by an observer to be a doubling or halving of the sound. For example, a sound at 70 dB will sound twice as loud as a sound at 60 dB.

Finally, sound intensity decreases in proportion with the square of the distance from the source. Generally, sound levels for a point source will decrease by 6 dBA for each doubling of distance. Sound levels for a highway line source vary differently with distance, because sound pressure waves are propagated all along the line and overlap at the point of measurement. A long, closely spaced continuous line of vehicles along a roadway becomes a line source and produces a 3 dBA decrease in sound level for each doubling of distance. However, experimental evidence has shown that where sound from a highway propagates close to "soft" ground (e.g., plowed farmland, grass, crops, etc.), the most suitable dropoff rate to use is not 3 dBA but rather 4.5 dBA per distance doubling. This 4.5 dBA dropoff rate is usually used in traffic noise analyses.

For the purpose of highway traffic noise analyses, motor vehicles fall into one of three categories: (1) automobiles - vehicles with two axles and four wheels, (2) medium trucks - vehicles with two axles and six wheels, and (3) heavy trucks - vehicles with three or more axles. The emission levels of all three vehicle types increase as a function of the logarithm of their speed.

The level of highway traffic noise depends on three things: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of the traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater numbers of trucks. Vehicle noise is a combination of the noises produced by the engine, exhaust, and tires. The loudness of traffic noise can also be increased by defective mufflers or other faulty equipment on vehicles. Any condition (such as a steep incline) that causes heavy laboring of motor vehicle engines will also increase traffic noise levels. In addition, there are other, more complicated factors that affect the loudness of traffic noise. For example, as a person moves away from a highway, traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade obstacles. Traffic noise is not usually a serious problem for people who live more than 150 meters from heavily traveled freeways or more than 30 to 60 meters from lightly traveled roads.

## FHWA NOISE REGULATIONS

The current FHWA procedures for highway traffic noise analysis and abatement are contained in 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." These procedures specify the requirements that SHAs must meet when using Federal-aid funds for highway projects.

This discussion will address those requirements and point out the most important issues related to the requirements. Each paragraph of 23 CFR 772 will be presented in boldface type and followed by a discussion of that paragraph. Some parts are self-explanatory and need only a sentence or two of discussion. Other, more complicated paragraphs will have greater discussion.

**772.1: PURPOSE. To provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to Title 23, United States Code (U.S.C.).**

The protection of the public's health and welfare is an important responsibility that FHWA helps to accomplish during the planning and design of a highway project. The U.S. Congress has directed that this be done when the 1970 Federal-Aid Highway Act was passed. Concerned citizens and States encouraged Congress to provide this protection.

**772.3: NOISE STANDARDS. The highway traffic noise prediction requirements, noise analyses, noise abatement criteria, and requirements for informing local officials in this directive constitute the noise standards mandated by 23 U.S.C. 109(i). All highway projects which are developed in conformance with this directive shall be deemed to be in conformance with the Federal Highway Administration (FHWA) noise standards.**

This paragraph makes the whole 23 CFR 772 the FHWA noise standard. The standard is required by 23 U.S.C. 109(i). Some people mistake the noise abatement criteria for the FHWA standard. Early on, FHWA did not want to be restricted to specific noise levels that may not be achieved in most highway projects. So, a standard was developed that would best serve the public in terms of protection and reasonable cost.

### **772.5: DEFINITIONS**

- a. **Design Year - the future year used to estimate the probable traffic volume for which a highway is designed. A time, 10 to 20 years, from the start of construction is usually used.**





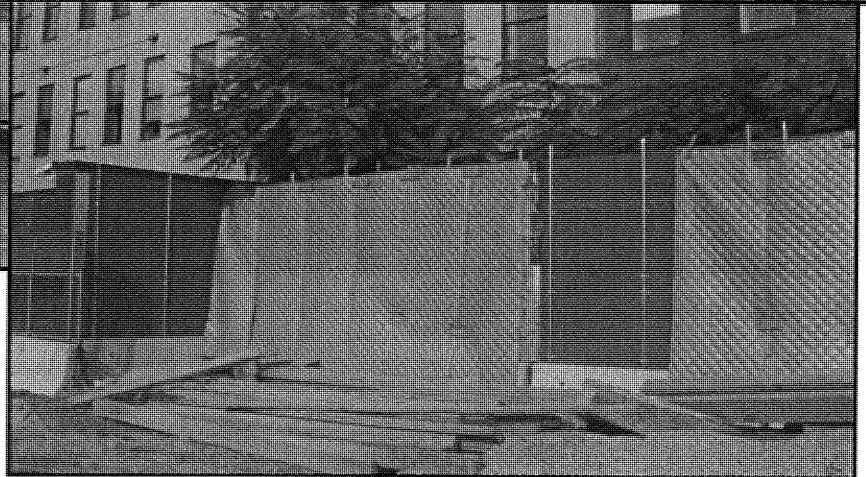
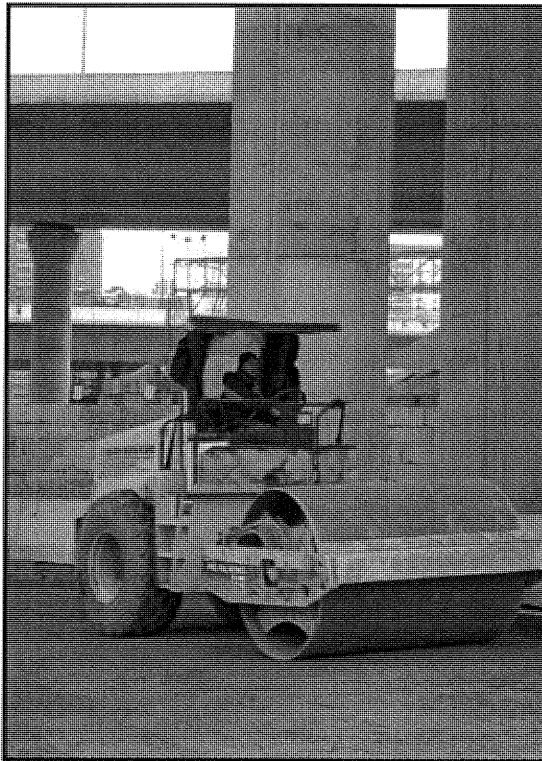
U.S. Department  
of Transportation

**Federal Highway  
Administration**

FHWA-HEP-05-054  
DOT-VNTSC-FHWA-05-01

# **FHWA Roadway Construction Noise Model User's Guide**

**Final Report**  
January 2006



Prepared for  
U.S. Department of Transportation  
Federal Highway Administration  
Office of Natural and Human Environment  
Washington, DC 20590

Prepared by  
U.S. Department of Transportation  
Research and Innovative Technology Administration  
John A. Volpe National Transportation Systems Center  
Acoustics Facility  
Cambridge, MA 02142

| REPORT DOCUMENTATION PAGE  |   |  | Form Approved<br>OMB No. 0704-0188                                   |   |
|--|---|--|--|---|
| Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.   |   |  |  |   |
| 1. AGENCY USE ONLY (Leave blank)   |   | 2. REPORT DATE<br>January 2006                             |  | 3. REPORT TYPE AND DATES COVERED<br>Final Report<br>January 2004-January 2006 |
| 4. TITLE AND SUBTITLE<br>FHWA Roadway Construction Noise Model, Version 1.0 User's Guide   |   |  | 5. FUNDING NUMBERS<br>HW-66/CS036                                    |   |
| 6. AUTHOR(S)<br>Reherman, Clay N. <sup>(1)</sup> , Rochat, Judith L. <sup>(1)</sup> , Thalheimer, Erich S. <sup>(2)</sup> , Lau, Michael C. <sup>(1)</sup> , Fleming, Gregg G. <sup>(1)</sup> , Ferroni, Mark <sup>(1)</sup> , Corbisier, Christopher <sup>(1)</sup>   |   |  |  |   |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)<br>U.S. Department of Transportation<br>Research and Innovative Technology Administration<br>John A. Volpe National Transportation Systems Center<br>Environmental Measurement and Modeling Division, DTS-34<br>Cambridge, MA 02142   |   |  | 8. PERFORMING ORGANIZATION<br>REPORT NUMBER<br>DOT-VNTSC-FHWA-05-01  |   |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)<br>U.S. Department of Transportation<br>Federal Highway Administration<br>Office of Natural and Human Environment<br>Washington, DC 20590  |   |  | 10. SPONSORING/MONITORING<br>AGENCY REPORT NUMBER<br>FHWA-HEP-05-054 |   |
| 11. SUPPLEMENTARY NOTES<br>(1) U.S. Department of Transportation Federal Highway Administration Office of Natural and Human Environment Washington, DC 20590 (2) Parsons Brinckerhoff Quade & Douglas Inc. 75 Arlington St. Boston, MA 02116 (3) U.S. Department of Transportation Research and Innovative Technology Administration John A. Volpe National Transportation Systems Center Environmental Measurement and Modeling Division Cambridge, MA 02142  |   |  |  |   |
| 12a. DISTRIBUTION/AVAILABILITY STATEMENT<br>This document is available to the public through the National Technical Information Service, Springfield, VA 22161   |   |  | 12b. DISTRIBUTION CODE   |   |
| 13. ABSTRACT (Maximum 200 words)<br><br>The Roadway Construction Noise Model (RCNM) is the Federal Highway Administration's (FHWA) national model for the prediction of construction noise. Due to the fact that construction is often conducted in close proximity to residences and businesses, construction noise must be controlled and monitored to avoid impacts on surrounding communities. In addition to community issues, excessive noise can threaten a construction projects' progress. Each project needs to balance the community's need for peace and quiet with the contractor's need to progress the work.<br><br>During the Central Artery/Tunnel (CA/T) project in Boston, Massachusetts, the project's noise control program developed the Construction Noise Control Specification 721.560, the most comprehensive noise specification ever developed in the United States. As part of the CA/T project noise control program, a construction noise prediction spreadsheet was developed. Because the CA/T prediction tool can benefit other state and local governments, the FHWA developed the RCNM, which is based on the noise prediction calculations and equipment database used in the CA/T prediction spreadsheet. The RCNM provides a construction noise screening tool to easily predict construction noise levels and determine compliance with noise limits for a variety of construction noise projects of varying complexity. |   |  |  |   |
| 14. SUBJECT TERMS<br>construction noise, noise levels, dBA, noise models, community impact, Federal Highway Administration   |   |  | 15. NUMBER OF PAGES<br>28  |   |
|  |   |  | 16. PRICE CODE   |   |
| 17. SECURITY CLASSIFICATION<br>OF REPORT<br>Unclassified   | 18. SECURITY CLASSIFICATION<br>OF THIS PAGE<br>Unclassified | 19. SECURITY CLASSIFICATION<br>OF ABSTRACT<br>Unclassified | 20. LIMITATION OF<br>ABSTRACT<br>Unlimited                           |   |

## REFERENCE 6

Irvine, California, Code of Ordinances >> TITLE 6 - PUBLIC WORKS >> Division 8 - POLLUTION  
>> CHAPTER 2. - NOISE >>

**CHAPTER 2. - NOISE**

[77]

Sec. 6-8-201. - Declaration of policy.

Sec. 6-8-202. - Definitions.

Sec. 6-8-203. - Noise level measurement criteria.

Sec. 6-8-204. - General provision.

Sec. 6-8-205. - Special provisions.

Sec. 6-8-206. - Reserved.

Sec. 6-8-207. - Enforcement.

Sec. 6-8-208. - Waiver procedure.

Sec. 6-8-209. - Appeals.

**Sec. 6-8-201. - Declaration of policy.**

The City Council has adopted the following regulations in order to control unnecessary, excessive and annoying noise in the City of Irvine. The provisions of this chapter are applicable to nontransportation-related stationary noise sources.

(Code 1976, § VI.K-301; Ord. No. 84-18, 9-11-84)

**Sec. 6-8-202. - Definitions.**

The following definitions are provided to clarify words, phrases and terms used in this chapter.

*Ambient noise level:* The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

*Cumulative period:* An additive period of time composed of individual time segments which may be continuous or interrupted.

*Decibel (dB):* A unit of noise measurement indicating the loudness of sound, based on logarithmic (base 10) scale.

*Emergency work:* Any mechanical device, apparatus or equipment which is used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

*Grading:* Any excavating or filling of earth material or any combination thereof conducted to prepare a site for construction or the placement of the improvements thereon.

*Impact noises:* The noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

*Noise level:* The "A" weighted sound pressure level in decibels obtained by using a sound level meter. The "A" weighted discriminates against the lower and higher frequencies according to a relationship with the sensitivity of the human ear. The unit of measurement is designated as dB(A).

*Predominant tone noise:* A noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

*Stationary noise source:* The source which is often referred to as "fixed source" (non-transportation-related) including but not limited to mechanical electric equipment, various power tools construction, commercial, industrial and agricultural activity and animal noise.

(Code 1976, § VI.K-302; Ord. No. 84-18, 9-11-84)

## REFERENCE 6

**Sec. 6-8-203. - Noise level measurement criteria.**

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter. The location selected for measuring exterior noise levels shall be anywhere on the affected property. The interior noise measurement shall be made at a point in the affected unit at least four feet from the wall, ceiling or floor nearest the noise source.

(Code 1976, § VI.K-303; Ord. No. 84-18, 9-11-84)

**Sec. 6-8-204. - General provision.**

- A. *Designated noise zones.* The properties hereinafter described, whether within or without the City, are hereby assigned to the following noise zones:
1. *Noise zone 1:* All hospitals, libraries, churches, schools and residential properties.
  2. *Noise zone 2:* All professional office and public institutional properties.
  3. *Noise zone 3:* All commercial properties excluding professional office properties.
  4. *Noise zone 4:* All industrial properties.
- B. *Exterior and interior noise standards.*
1. The following noise standards, unless otherwise specifically indicated, shall apply to all property within a designated noise zone.

NOISE STANDARDS  
dB(A)

*Noise Levels for a Period Not  
Exceeding (minutes/hour)*

| Noise Zone | Time Period          | 30 | 15 | 5               | 1               | 0 (anytime) |
|------------|----------------------|----|----|-----------------|-----------------|-------------|
| 1 Exterior | 7:00 a.m.—10:00 p.m. | 55 | 60 | 65 <sup>1</sup> | 70              | 75          |
|            | 10:00 p.m.—7:00 a.m. | 50 | 55 | 60              | 65 <sup>1</sup> | 70          |
| Interior   | 7:00 a.m.—10:00 p.m. | —  | —  | 55              | 60              | 65          |
|            | 10:00 p.m.—7:00 a.m. | —  | —  | 45              | 50              | 55          |
| 2 Exterior | Any time             | 55 | 60 | 65              | 70              | 75          |
|            | Interior Any time    | —  | —  | 55              | 60              | 65          |
| 3 Exterior | Any time             | 60 | 65 | 70              | 75              | 80          |
|            | Interior Any time    | —  | —  | 55              | 60              | 65          |
| 4 Exterior | Any time             | 70 | 75 | 80              | 85              | 90          |
|            | Interior Any time    | —  | —  | 55              | 60              | 65          |

<sup>1</sup> This standard does not apply to multi-family residence private balconies. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

.....

2. It shall be unlawful for any person at any location within the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured on any property within designated noise zones either within or without the City to exceed the applicable noise standard.
3. Each of the noise standards specified above shall be reduced by five dB(A) for impact, or predominant tone noise or for noises consisting of speech or music.
4. In the event that the noise source and the affected property are within different noise zones, the noise standards of the affected property shall apply.

(Code 1976, § VI.K-304; Ord. No. 84-18, 9-11-84; Ord. No. 05-06, § 2, 2-22-05)

## REFERENCE 6

**Sec. 6-8-205. - Special provisions.**

- A.** Construction activities and agricultural operations may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading, or transfer of materials, equipment service, maintenance of any devices or appurtenances for or within any construction project in the City shall not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take impact upon the community into consideration. No construction activity and agricultural will be permitted outside of these hours except in emergencies including maintenance work on the City rights-of-way that might be required.
- Deliveries to or pickups from any commercial property sharing a property line with any residential property may occur between 7:00 a.m. and 10:00 p.m. daily. No deliveries to or pickups from any such properties shall occur outside of these hours.
- B.** Maintenance of real property operations may exceed the noise standards between 7:00 a.m. and 7:00 p.m. on any day except Sundays, or between 9:00 a.m. and 6:00 p.m. on Sundays or a federal holiday.
- C.** The use of leaf blowers shall be regulated as follows:
- 1.** *Definition of leaf blower.* Leaf blowers are defined as portable power equipment that is powered by fuel or electricity and used in any landscape maintenance, construction, property repair, or property maintenance for the purpose of blowing, dispersing or redistributing dust, dirt, leaves, grass clippings, cuttings and trimmings from trees and shrubs or other debris.
  - 2.** *Limitations on use.*
    - a.** All leaf blowers shall be equipped with a permanently installed limiter that restricts the individual equipment motor performance to half throttle speed or less, and will produce not more than 70 decibels db(A) measured at the midpoint of a wall area 20 feet long and ten feet high and at a horizontal distance 50 feet away from the midpoint of the wall, or not more than 76 db(A) at a horizontal distance of 25 feet using a sound level meter set at level A.
    - b.** Each individual leaf blower shall be tested and certified for use by the City of Irvine or its designated representative. Each individual leaf blower shall bear the label of required approval in a visible location on the equipment prior to use and at all times during use. A fee for the City to recover all costs connected with equipment approvals shall be charged in an amount set by City resolution.
    - c.** The use of leaf blowers is prohibited except between the hours of 8:00 a.m. and 5:00 p.m. Monday through Friday and between 9:00 a.m. and 5:00 p.m. on Saturday.
    - d.** Leaf blower operations shall not cause dirt, dust, debris, leaves, grass clippings, cuttings or trimmings from trees or shrubs to be blown or deposited on any adjacent or other parcel of land, lot, or public right-of-way/property other than the parcel, land, or lot upon which the leaf blower is being operated. Deposits of dirt, dust, leaves, grass clippings, debris, cuttings or trimmings from trees or shrubs shall be removed and disposed of in a sanitary manner which will prevent dispersment by wind, vandalism or similar means within six hours of deposit by the user or property occupant.
    - e.** Leaf blowers shall not be operated within a horizontal distance of ten feet of any operable window, door, or mechanical air intake opening or duct.
    - f.** No person using leaf blowers shall exceed noise limitations set by section 6-8-204 of the City Code of Ordinances.
  - 3.** *Education.*
    - a.** Each person operating an individual leaf blower is required to complete not less than one training session of content and time approved by the City of Irvine Administrative Authority prior to operation of leaf blower equipment. Training and qualification shall be required for certification at least every two years for each individual equipment user.
    - b.** The equipment operator shall carry certification of the training and qualification at all times during equipment use and make it available upon demand. Failure to abide by the use requirements contained in this Code and/or the certification training provided will be cause for the City of Irvine to revoke such certification.
    - c.** *Exception:* An individual residential property occupant operating a single leaf blower himself or herself in a manner confined to his or her own property shall be excepted from the education requirements set forth by this subsection.
  - 4.** *Fees.* A fee for the City to recover all costs connected with training, testing, certification and enforcement shall be charged in an amount set by City Council resolution.
- D.** The following activities shall be exempted from the provision of this chapter:

**REFERENCE 6**

1. School bands, school athletic and school entertainment events, provided said events are conducted on school property or authorized by special permit from the City.
2. Activities otherwise lawfully conducted on public parks, public playgrounds and public or private school grounds.
3. Any mechanical device, apparatus or equipment which is utilized for emergency work, pest control, and protection or harvest of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.
4. Any activity or equipment to the extent that design regulation thereby has been preempted by State or federal law.

The Chief Building Official or his or her duly authorized representative and City police shall enforce where necessary the provisions of this chapter. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter which such person is engaged in the performance of his or her duty.

(Code 1976, § VI.K-305; Ord. No. 84-18, 9-11-84; Ord. No. 88-11, §§ 1, 2, 5-24-88; Ord. No. 90-2, § 1, 2-13-90; Ord. No. 90-7, § 1, 4-10-90; Ord. No. 05-16, § 2, 7-12-05)

**Sec. 6-8-206. - Reserved.****Sec. 6-8-207. - Enforcement.**

The Chief Building Official or his or her duly authorized representative shall enforce the provisions of this chapter. No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this chapter while such person is engaged in the performance of his or her duty.

(Code 1976, § VI.K-306; Ord. No. 84-18, 9-11-84)

**Sec. 6-8-208. - Waiver procedure.**

- A. The owner or operator of a noise source which violates any of the provisions of this chapter may apply for temporary waiver with the Chief Building Official. Any waiver granted shall take impact upon the community into consideration and state why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee as listed in the City Council resolution for variances where deemed appropriate and necessary by the City administrative authority.
- B. A separate application shall be filed for each noise source; provided, however, that several sources under common ownership or several sources on a single property may be combined into one application.
- C. An applicant for a waiver shall remain subject to prosecution under the terms of this chapter until a waiver is granted.
- D. Within 60 days of receipt of an appeal, the City Council shall either affirm, modify or reverse the decision of the Chief Building Official at a duly notified public hearing.

(Code 1976, § VI.K-307; Ord. No. 84-18, 9-11-84; Ord. No. 90-7, § 2, 4-10-90)

**Sec. 6-8-209. - Appeals.**

- A. The decision of the Chief Building Official on waiver applications may be appealed to the City Council. Appeals shall be filed with the City Clerk and shall be accompanied by a letter stating the reason for the appeal.
- B. An appeal shall be accompanied by a deposit/fee of \$150 to be updated on an annual basis by City Council resolution.
- C. An appeal shall be filed within 15 days of the decision of the Chief Building Official.
- D. Within 60 days of receipt of an appeal, the City Council shall either affirm, modify or reverse the decision of the Chief Building Official at a duly notified public hearing.

(Code 1976, § VI.K-308; Ord. No. 84-18, 9-11-84)

**FOOTNOTE(S):**

<sup>(77)</sup> **Editor's note**— Prior to amendment by Ord. No. 84-18, adopted Sept. 11, 1984, the provisions of this chapter derived from Ord. No. 136, §§ 2—13, adopted March 25, 1975. ([Back](#))



41 Corporate Park, Suite 300  
Irvine, CA 92606

Prepared by:

Bill Lawson, P.E., INCE  
J.T. Stephens, INCE

**DRAFT**

Prepared for:

Ms. Jennifer Bohen  
FivePoint Communities  
25 Enterprise, Suite 400  
Aliso Viejo, CA 92656CA 92617

**GREAT PARK NEIGHBORHOODS  
VESTING TENTATIVE TRACT MAPS 17202, 17364, 17283, 17366, AND 17368  
PRELIMINARY NOISE IMPACT ANALYSIS  
CITY OF IRVINE, CALIFORNIA**

February 24, 2011

JN:07228-06  
BL:JS

## ***ELEMENT F*** **NOISE**

***GOAL: Contribute to a healthy and safe environment by minimizing noise impacts.***

### **Description of Noise Element**

Noise, as defined in this element, is generally unwanted sound which is considered unpleasant and bothersome. Unwanted noise can affect people both physically and psychologically. People are usually more sensitive to noise during the evening and nighttime than during the day because of reduced activities, fewer noise emitting sources, and the need for rest. Land uses in which people are especially sensitive to noise include residential, convalescent and rest homes, hospitals, libraries, churches, and schools. This element provides guidelines for minimizing noise impacts from various sources.

The Community Noise Equivalent Level (CNEL), commonly used by California local governments, is used by Irvine to quantify community noise levels and standards. The CNEL is an average of noise levels over a twenty-four hour period. Refer to technical definitions on Page F-3.

The City's interior and exterior noise standards are shown on Table F-1. Table F-2 shows each land use category and the CNEL which is compatible with the uses in the category.



**TABLE F-1**  
**INTERIOR AND EXTERIOR NOISE STANDARDS**  
**ENERGY AVERAGE (CNEL)**

| LAND USE CATEGORIES       |   | ENERGY AVERAGE (CNEL)   |                         |
|---------------------------|---|-------------------------|-------------------------|
| CATEGORIES                | USES  | INTERIOR <sup>(1)</sup> | EXTERIOR <sup>(2)</sup> |
| RESIDENTIAL               | Single-Family   | 45 <sup>(3)</sup>       | 55 <sup>(4)</sup>       |
|                           | Multiple-Family   |                         | 65 <sup>(7)</sup>       |
|                           | Mobile Home   | _____                   | 65 <sup>(5)</sup>       |
| COMMERCIAL/<br>INDUSTRIAL | Hotel, motel, transient lodging                                 | 45                      | 65 <sup>(6)</sup>       |
|                           | Commercial, retail, bank, restaurant                            | 55                      | _____                   |
|                           | Office building, professional office,<br>research & development | 50                      | _____                   |
|                           | Amphitheater, concert hall, auditorium,<br>meeting hall         | 45                      | _____                   |
|                           | Gymnasium (Multipurpose)  | 50                      | _____                   |
|                           | Health clubs  | 55                      | _____                   |
|                           | Manufacturing, warehousing,<br>wholesale, utilities             | 65                      | _____                   |
|                           | Movie theater   | 45                      | _____                   |
| INSTITUTIONAL             | Hospital, school classroom                                      | 45                      | 65                      |
|                           | Church, library   | 45                      | _____                   |
| OPEN SPACE                | Parks   | _____                   | 65                      |

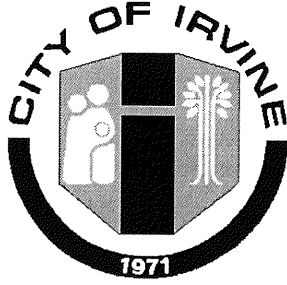
Interpretation:

1. Interior environment excludes bathrooms, toilets, closets, and corridors.
2. Outdoor environment limited to private yard of single-family or multi-family residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.
4. Noise level requirement with open windows, if they are used to meet natural ventilation requirement.
5. Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
6. Except those areas affected by aircraft noise.
7. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

# ACOUSTICAL REPORT

## INFORMATION SHEET

REFERENCE 9



### GENERAL INFORMATION

Acoustical analysis reports for noise impacted projects may be required, according to either the Noise Element of the Irvine General Plan, the zoning regulations, or conditions of project approval. This information sheet will discuss the requirements for acoustical reports, the review process, and guidelines for evaluation of noise reports. If you have any questions after you have read this information, call Community Development Department, Development Assistance Center at (949) 724-6308.

### ACOUSTICAL REPORT

In meeting the acoustical analysis requirements for noise impacted areas (outside ambient noise levels of 60 & 65 CNEL or more for aircraft noise impacted areas) in the City of Irvine, two acoustical reports are usually required, a preliminary report and a final report.

1. Preliminary Acoustical Reports: In noise impacted areas, a preliminary acoustical analysis is required prior to approvals for either Zone Change, subdivision, Conditional Use Permit or Master Plan, whichever come first. The site plan and/or subdivision map shall show where the 60 and 65 etc. CNEL lines fall within the project. Specific approaches to reducing noise to acceptable levels shall be discussed in this preliminary report. Noise mitigation measures such as berms, walls, or other barriers, setbacks, and project design alternative shall be discussed and evaluated. Sound barriers such as berms and walls shall be specified on the site plan.
2. Final Report: Prior to issuance of building permits, a final acoustical report shall be submitted if required by a condition of project approval; noise attenuation, building materials and construction techniques shall be provided. Where appropriate, verify the adequacy of mitigation measures proposed in the preliminary report. For new hotels, motels, apartment houses, and dwellings other than single-family detached, the noise report shall also verify whether the requirements of Title 25 have been met for mitigating noise transmission between attached units.

### PROCESSING ACOUSTICAL REPORTS

1. Preliminary Acoustical Reports.
  - a) The project applicant shall submit the preliminary acoustical report at the time of submittal of plans for approvals for Zone Change, subdivision, Conditional Use Permit, or Master Plan. The preliminary acoustical report shall meet the minimum requirements as outlined in "Submittal Requirements", on the following page.
  - b) Review of all preliminary acoustical reports will be complete within the time frames established for review and approval of all other environmental documents to be prepared for the development project pursuant to the California Environmental Quality Act (CEQA).
  - c) The approval of the preliminary acoustical report will be made as part of the approval of environmental documents prepared pursuant to CEQA for the project. The environmental documents will specify mitigation measures necessary for the project to meet City standards. Copies of all environmental documents will be incorporated into the development project file and appropriate conditions will be placed in the project resolution of approval.

2. Final Acoustical Reports.

**REFERENCE 9**

- a) The project applicant shall submit the final acoustical report building permit submittal. The final acoustical report shall meet the minimum requirements as specified in "Submittal Requirements."
- b) Review of all final acoustical reports will be completed within three weeks.

**SUBMITTAL REQUIREMENTS**

The following items shall be included in an acoustical analysis submitted to the City:

1. City Noise Standards

- a) Exterior noise levels
- b) Interior noise levels

2. Title 25 Standard

- a) Sound transmission class
- b) Impact insulation class

3. Noise sources

- a) Highway sources
- b) Aircraft sources
- c) Other: specify
- d) Combined sources

4. Noise Level Calculations (both existing and ultimate)

- a) CNEL
- b)  $L_{\max}^{(10 \text{ or } 30)}$

NOTE: Show in terms of distance from centerline of the road. Show the CNEL contours for all surface and air noise sources, both individually and combines.

5. Assumptions

- a) Average daily traffic (ADT)
- b) Traffic speed
- c) Percent of truck traffic
- d) Future motor vehicle noise reduction
- e) Roadway pad elevations
- f) On-site aircraft noise measurements (sample should include 20-25 overflights, or 35-40 over flights for critical areas).

6. Mitigation Measures

- a) Site and building design orientation
- b) Grading assumptions identified for noise barriers
- c) Sound flanking on barriers
- d) Barrier breaks line of sight (with center line of road)
- e) Building construction elements identified
- f) Total noise reduction

---

**ACOUSTICAL REPORT REQUIREMENTS**

7. Optional. Material. The Planning Commission or Director of Community Development may require the submittal of additional supportive materials illustrating the design and development concept proposed for the project will meet City noise attenuation requirements.

REFERENCE 9

## INTERIOR AND EXTERIOR NOISE STANDARDS

### ENERGY AVERAGE (CNEL)

| LAND USE CATEGORIES          |   | ENERGY AVERAGE (CNEL)                  |  |            |            |
|------------------------------|---|--|--|------------|------------|
| <u>CATEGORIES</u>            | <u>USES</u>   | <u>INTERIO</u><br><u>R<sup>1</sup></u> | <u>EXTERIO</u><br><u>R<sup>2</sup></u> | <u>STC</u> | <u>IIC</u> |
| RESIDENTIAL                  | Single Family   | 45 <sup>3</sup> 55 <sup>4</sup>        | 65                                     |            |            |
|                              | Multiple Family, Duplex   | 45 <sup>3</sup> 55 <sup>4</sup>        | 65                                     | 50         | 50         |
|                              | Mobile Home   | -----                                  | 65 <sup>5</sup>                        |            |            |
| COMMERCIAL                   | Hotel, Motel,<br>Transient lodging  | 45                                     | 65 <sup>6</sup>                        | 50         | 50         |
| INDUSTRIAL/<br>INSTITUTIONAL | Commercial Retail, Bank,<br>Restaurant  | 55                                     | -----                                  |            |            |
|                              | Office building, Research<br>development, Professional<br>office City office building | 50                                     | -----                                  |            |            |
|                              | Amphitheater, Concert Hall,<br>Auditorium meeting hall                                | 45                                     | -----                                  |            |            |
|                              | Gymnasium (Multipurpose)  | 50                                     | -----                                  |            |            |
|                              | Sports clubs  | 55                                     | -----                                  |            |            |
|                              | Manufacturing, Warehousing,<br>Wholesale, Utilities                                   | 65                                     | -----                                  |            |            |
|                              | Movie Theater   | 45                                     | -----                                  |            |            |
|                              | Hospital, Schools' classroom  | 45                                     | 65                                     |            |            |
| INSTITUTIONAL                | Church, Library   | 45                                     | -----                                  |            |            |
|                              | Parks   | -----                                  | 65                                     |            |            |

## INTERPRETATION

### REFERENCE 9

1. Indoor environment excluding: Bathrooms, toilets, closets, corridors.
2. Outdoor environment including:
3. Private Yard of Single Family
  - Private Patio or Balcony of Multiple Family
  - Mobile Home Park
  - Hospital Patio
  - Park's Picnic Area
  - Hotel and Motel Recreation Area

Noise level requirement with closed windows. Mechanical ventilating system shall be provided as of Chapter 12, Section 1205 of UBC.

3. Noise level requirement with open windows.
4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.
5. Except those area affected by aircraft noise.

#### Single Event Noise Standard

|                       |                      |
|-----------------------|----------------------|
| $L_{\max}^{(10)}$ for | 65 dBA 7a.m. - 7p.m. |
| Less than             | 55 dBA 7p.m. - 7a.m. |

Noise sensitive land uses  
within the 60 CNEL of  
Aircraft and Railroad

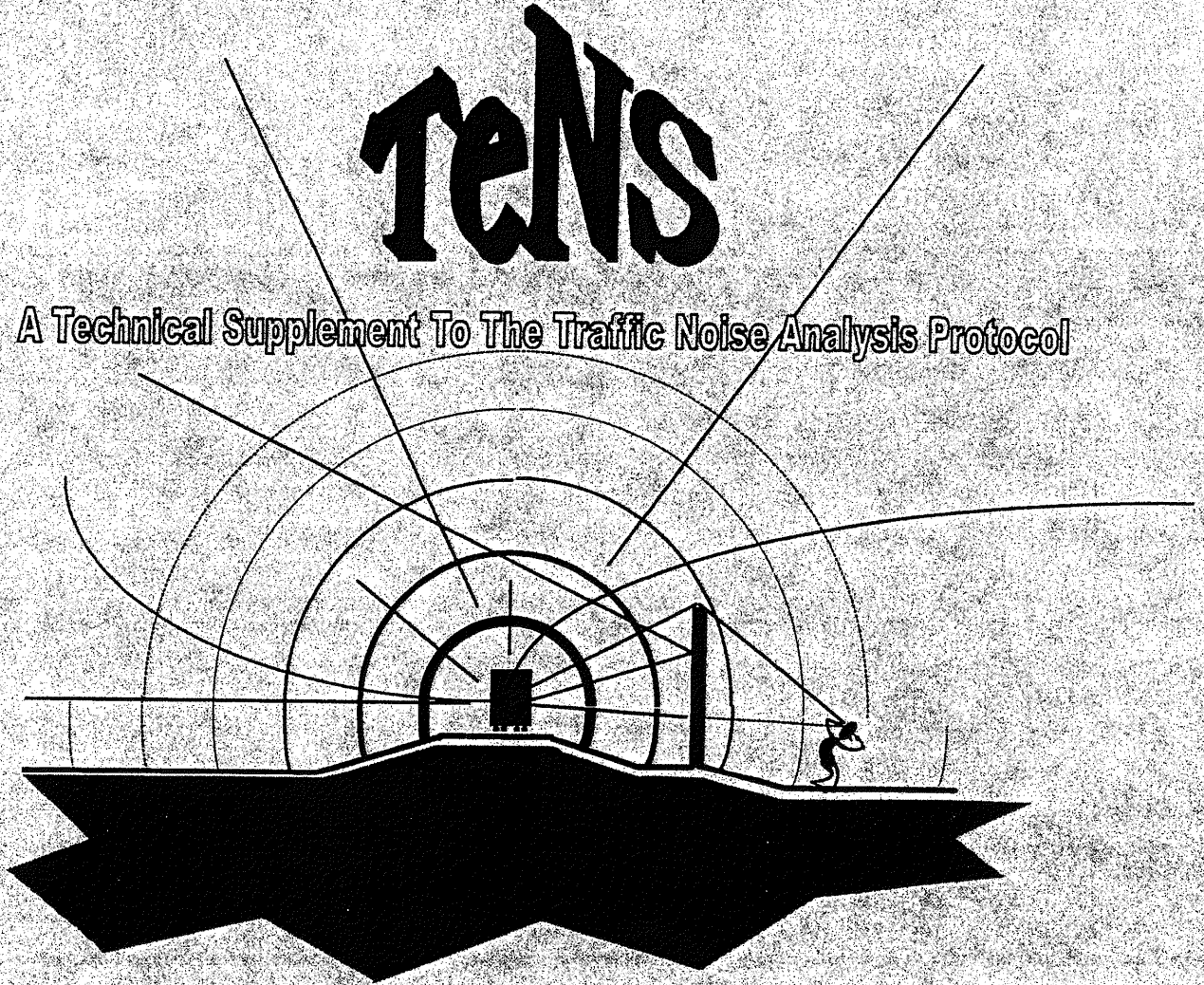
The maximum interior noise levels of the loudest 10% of single noise events ( $L_{\max}^{(10)}$ ) for typical occupancy for noise sensitive land uses shall not exceed 65 dBA daytime (7a.m. to 7p.m.) and 55 dBA nighttime (7p.m. to 7a.m.).

NOTE: The samples for single event noise measurement must include representative aircraft operation.

# *Technical Noise Supplement*

# **TeNs**

**A Technical Supplement To The Traffic Noise Analysis Protocol**

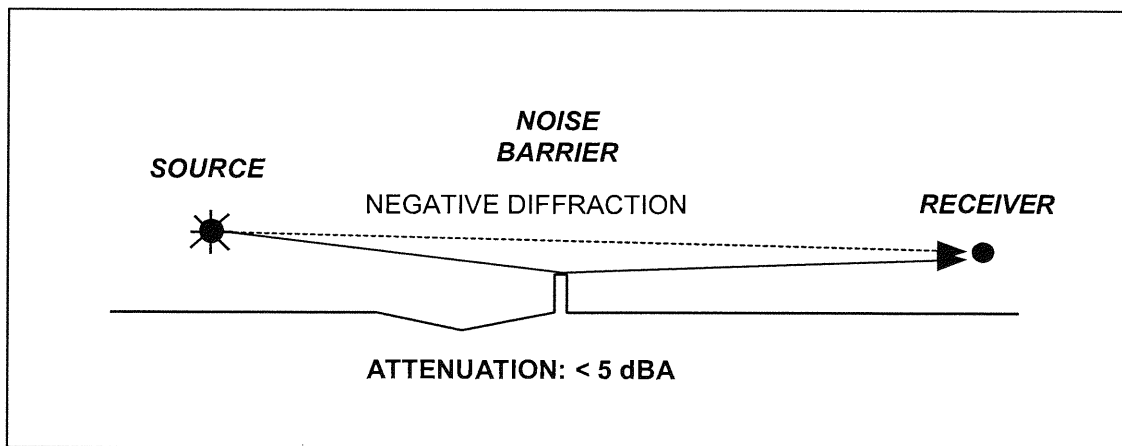


**October 1998**

**California Department of Transportation  
Environmental Program  
Environmental Engineering-  
Noise, Air Quality, and Hazardous Waste Management Office**

“negative path length difference and “negative Fresnel Number”) generally occurs when the direct noise path is within 1.5 m (5 ft) above the top of barrier for the average traffic source and receiver distances encountered in near highway noise environments. The noise attenuation provided by this situation is between 0 - 5 dBA: 5 dBA when the noise path approaches the grazing point and near 0 dBA when it clears the top of barrier by approximately 1.5 m (5 ft) or more.

**Figure N-2144.6 - “Negative Diffraction” Provides Some Noise Attenuation**



The aforementioned principles of barriers loosely apply to terrain features (such as berms, low ridges, as well as other significant manmade features). The principles will be discussed in greater detail in sections N-5500 and N-6000.

## **N-2200 EFFECTS OF NOISE; NOISE DESCRIPTORS**

### **N-2210 Human Reaction to Sound**

People react to sound in a variety of ways. For example, rock music may be pleasant to some people while for others it may be annoying, constitute a health hazard and/or disrupt activities. Human tolerance to noise depends on a variety of acoustical characteristics of the source, as well as environmental characteristics. These factors are briefly discussed below:

1. Level, variability in level (dynamic range), duration, frequency spectrums and time patterns of noise. Exposures to very high noise levels can damage hearing. A high level is more objectionable than a low level noise, and intermittent truck peak noise levels are more objectionable than the continuous level of fan noise. Humans have better hearing sensitivities in the high frequency region than in the low. This is reflected in the A-scale (section N-2136) which de-emphasizes the low frequency

sounds. Studies indicate that the annoyance or disturbance correlates with the A-scale.

2. *The amount of background noise present before the intruding noise.* People tend to compare an intruding noise with the existing background noise. If the new noise is readily identifiable or considerably louder than the background or ambient, it usually becomes objectionable. An aircraft flying over a residential area is an example.
3. *The nature of the work or living activity that is exposed to the noise source.* Highway traffic noise might not be disturbing to workers in a factory or office, but the same noise might be annoying or objectionable to people sleeping at home or studying in a library. An automobile horn at 2:00 a.m. is more disturbing than the same noise in traffic at 5:00 p.m.

## **N-2211 Human Response to Changes in Noise Levels**

Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA, when exposed to steady, single frequency ("pure tone") signals in the mid-frequency range. Outside of such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA.

Earlier, we discussed the concept of "A" - weighting and the reasons for describing noise in terms of dBA. The human response curve of frequencies in the audible range is simply not linear, i.e. humans do not hear all frequencies equally well.

It appears that the human perception of loudness is also not linear, neither in terms of decibels, nor in terms of acoustical energy. We have already seen that there is a mathematical relationship between decibels and relative energy. For instance, if one source produces a noise level of 70 dBA, two of the same sources produce 73 dBA, three will produce about 75 dBA, and ten will produce 80 dBA.

Human perception is complicated by the fact that it has no simple correlation with acoustical energy. Two noise sources do not "sound twice as loud" as one noise source. Based on the opinions of thousands of subjects tested by experts in the field, however, some approximate relationships between changes in acoustical energy and corresponding human reaction have been charted. The results have been summarized in Table N-2211.1, which shows the relationship between changes in acoustical energy, dBA and human perception. The table shows the relationship between changes in dBA ( $\Delta$ dBA), relative



energy with respect to a reference of a  $\Delta$ dBa of 0 (no change), and average human perception. The factor change in relative energy relates to the change in acoustic energy.

**Figure N-2211.1 Relationship Between Noise Level Change, Factor Change in Relative Energy, and Perceived Change**

| Noise Level Change, $\Delta$ dBa | Change in Relative Energy, $10^{\pm\Delta\text{dBa}/10}$ | Perceived Change  |                                  |
|----------------------------------|--|---|----------------------------------|
|                                  |  | Perceived Change in Percentage, $(2^{\pm\Delta\text{dBa}/10} - 1) \times 100\%$ | Descriptive Change in Perception |
| + 40 dBA                         | 10,000 x   |   | Sixteen Times as Loud            |
| + 30 dBA                         | 1,000 x  |   | Eight Times as Loud              |
| +20 dBA                          | 100 x  | + 300 %   | Four Times as Loud               |
| + 15 dBA                         | 31.6 x   | + 183 %   |                                  |
| + 10 dBA                         | 10 x   | + 100 %   | Twice as Loud                    |
| + 9 dBA                          | 7.9 x  | + 87 %  |                                  |
| + 8 dBA                          | 6.3 x  | + 74 %  |                                  |
| + 7 dBA                          | 5.0 x  | + 62 %  |                                  |
| + 6 dBA                          | 4.0 x  | + 52 %  |                                  |
| +5 dBA                           | 3.16 x   | + 41 %  | Readily Perceptible Increase     |
| +4 dBA                           | 2.5 x  | + 32 %  |                                  |
| + 3 dBA                          | 2.0 x  | + 23 %  | Barely Perceptible Increase      |
| <b>0 dBA</b>                     | <b>1</b>   | <b>0 %</b>  | <b>REFERENCE (No change)</b>     |
| - 3 dBA                          | 0.5 x  | - 19 %  | Barely Perceptible Reduction     |
| - 4 dBA                          | 0.4 x  | - 24 %  |                                  |
| - 5 dBA                          | 0.316 x  | - 29 %  | Readily Perceptible Reduction    |
| - 6 dBA                          | .25 x  | - 34 %  |                                  |
| - 7 dBA                          | 0.20 x   | - 38 %  |                                  |
| - 8 dBA                          | 0.16 x   | - 43 %  |                                  |
| - 9 dBA                          | 0.13 x   | -46 %   |                                  |
| - 10 dBA                         | 0.10 x   | - 50 %  | Half as Loud                     |
| - 15dBA                          | 0.0316 x   | - 65 %  |                                  |
| - 20 dBA                         | 0.01 x   | - 75 %  | One Quarter as Loud              |
| - 30 dBA                         | 0.001 x  |   | One Eighth as Loud               |
| - 40 dBA                         | 0.0001 x   |   | One Sixteenth as Loud            |

Section N-2133 mentioned that the r.m.s. value of the sound pressure ratio squared ( $P_1 / P_2$ ) is proportional to the energy content of sound waves (acoustic energy). Human perception is displayed in two columns (percentage and descriptive). The

**Table N-2231.2 - Ldn/CNEL Corrections ( $\Delta$ ); must be added to Ldn to obtain CNEL.**

| d    | E    | (CNEL = Ldn + $\Delta$ )<br>$\Delta$ |
|------|------|--------------------------------------|
| 0.80 | 0.05 | 0.3                                  |
| 0.79 | 0.06 | 0.4                                  |
| 0.78 | 0.07 | 0.5                                  |
| 0.77 | 0.08 | 0.5                                  |
| 0.76 | 0.09 | 0.6                                  |
| 0.75 | 0.10 | 0.7                                  |
| 0.74 | 0.11 | 0.7                                  |
| 0.73 | 0.12 | 0.8                                  |
| 0.72 | 0.13 | 0.8                                  |
| 0.71 | 0.14 | 0.9                                  |
| 0.70 | 0.15 | 0.9                                  |

The values shown assume a fixed night time fractional traffic contribution of 0.15 (D/N split of .85/.15 for  $L_{dn}$ ). The remaining day time traffic contribution of .85 is further subdivided into day (d) and evening (E) hours. In each instance,  $d+E = 0.85$ .

## **N-2240      Negative Effects on Humans**

The most obvious negative effects of noise are physical damage to hearing. Other obvious effects are the interference of noise with certain activities, such as sleeping, conversation, etc. Less obvious, but nevertheless very real, are the stress effects of noise. A brief discussion of each of the topics follows.

### **N-2241      Hearing Damage.**

A person exposed to high noise levels can suffer hearing damage. The damage may be **gradual** or **traumatic**. These are described as follows:

1. Gradual. Sustained exposure to moderately high noise levels over a period of time can cause **gradual hearing loss**. It starts out as a temporary hearing loss, such as immediately after a loud rock concert. The hearing usually restores itself within a few hours after exposure, although not quite to its pre-exposure level. This is also called a **temporary threshold shift**. Although the permanent deterioration may be negligible, it will become significant after many repetitions of the exposure. At that time, it is labeled **permanent hearing damage**. The main causes of permanent damage are daily exposure to industrial noise. Transportation noise levels experienced by communities and the general public are normally not high enough to produce hearing damage.
2. Traumatic. Short and sudden exposure to an extremely high noise level, such as a gun shot or explosion at very close range can cause a traumatic hearing loss. Such a loss is very sudden and can be permanent.

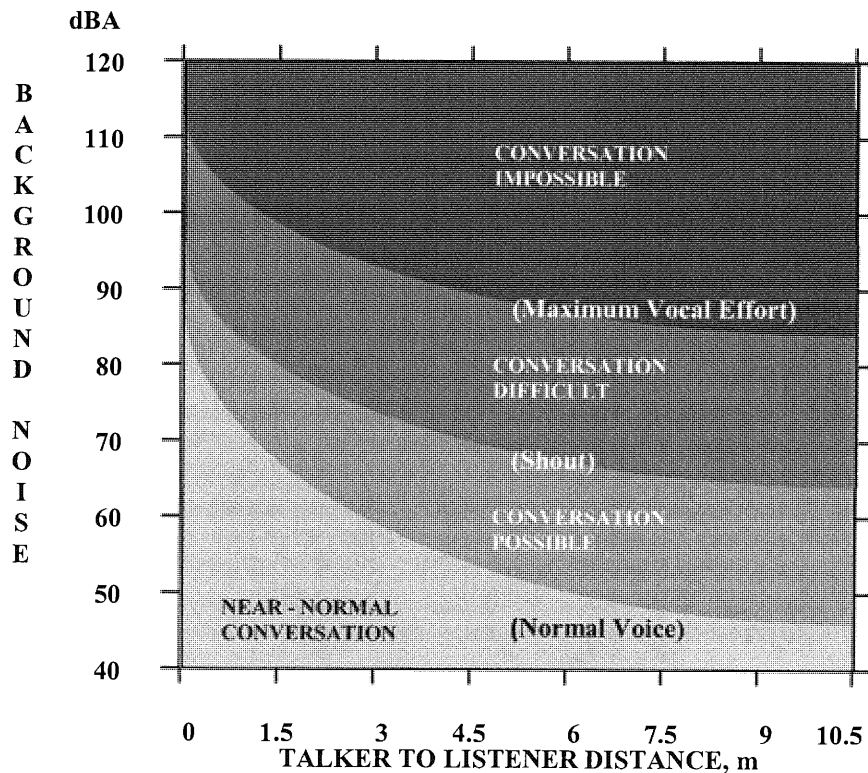
Hearing damage is preventable by reducing the exposure to loud noise. This can be done by quieting the source, shield the receiver by a barrier, or having the receiver wear proper

ear protection. Occupational exposure to noise is controlled by the Occupational Safety and Health Agency (OSHA), and is based on a maximum allowable noise exposure level of 90 dBA for 8 hours. For each halving of the exposure time, the maximum noise level is allowed to increase 5 dBA. Thus, the maximum allowable noise exposure (100 %) is 90 dBA for 8 hours, 95 dBA for 4 hours, 100 dBA for 2 hours, 105 dBA for 1 hour, 110 dBA for 30 minutes, and 115 dBA for 15 minutes. Dosimeters, worn by workers in noisy environments, can measure noise during the workday in percentages of the maximum daily exposure.

### N-2242 Interference with Activities.

Activities most affected by noise include rest, relaxation, recreation, study and communications. Although most interruptions by noise can be considered annoying, some may be considered dangerous. An example would be the inability to hear warning signals or verbal warnings in noisy industrial situations, or in situations involving workers next to a noisy freeway. Figure N-2242.1 gives an estimate of the speech communication that is possible at various noise levels and distances.

**Figure N-2242.1 - Interference of Conversation due to Background Noise**



For instance, if the talker to listener distance is 6 m, normal conversation can be conducted with the background level at about 50 dBA. If the background level is increased to 60 dBA, the talker must either raise his/her voice, or decrease the distance to the listener to 3 m.

### **N-2243      Stress Related Diseases**

There is ample evidence that noise can cause stress in humans, and thus may be responsible for a host of stress-related diseases, such as hypertension, anxiety, heart disease, etc. Although noise is probably not the sole culprit in these diseases, it can be a contributor. The degree of how much noise contributes to stress related diseases, depends on noise frequencies, their band widths, noise levels, and time patterns. In general, higher frequency, pure tone, and fluctuating noise tend to be more stressful than lower frequency, broad band, and constant-level noise.

## NOISE REPORTS

Introduction. The following report guidelines are to be used in conjunction with noise studies and preparation of noise reports for the City of Irvine. Two types of noise reports may be required: Preliminary and Final. The Preliminary Noise Report is intended to provide the City with environmental impact report information and proposed mitigation measures or alternatives needed to maintain noise within established standards. It is prepared for noise sensitive projects at the tentative map stage of project review, with updated or supplemental analysis provided at the time of conditional use permit review.

The Final Noise Report is intended to ensure that mitigation measures have been incorporated into the project planning and design to meet all applicable noise standards. The Final Noise Report is required based upon the findings of the Preliminary Report and is to be submitted in conjunction with the application for building permits.

The following outlines the contents of each of these reports.

### Preliminary Noise Reports

Project Description. Provide a brief description of the project. Identify and discuss the introduction of noise sensitive receptors to the area or the development of new noise sources.

Noise Standards. Summarize Federal, State, and local noise standards applicable to the project and its environs. On a local basis this includes the City's Noise Element, Noise Ordinance and Noise Notification Requirements (City Council Resolution 1090). Include both exterior and interior standards and explain under what conditions they are applicable (i.e., windows open/closed, at edge of property line, etc.).

Existing Noise Environment. Provide a quantitative description of the noise environment through modeling and sampling of existing noise levels.<sup>1</sup> Depict calculated noise contours on a land use or development plan using CNEL contours at intervals of 5 dba down to 60 CNEL<sup>2</sup>. The sound and temporal characteristics of each noise source shall be discussed. Calculate and discuss existing  $L_{max}^{10}$  for areas inside 60 CNEL aircraft noise contours. Discuss existing land uses in the area, and compare existing noise levels to the appropriate standards to identify any uses currently subject to noise levels near or above the standards.

Impact Analysis. Calculate future noise levels for a project completion time frame and ultimate condition. Provide a table showing exterior noise levels (distance to 65 CNEL contour) under the following conditions: existing noise levels, increases in noise attributable to the project, and ultimate levels expected. Depict ultimate noise contours in CNEL on the proposed land use or development plan in intervals of 5 down to 60 CNEL<sup>3</sup>. Calculate and discuss the  $L_{max}^{10}$ .

- 
1. See following section on Noise Modeling and Measurement.
  2. Consult with Environmental Services staff for the area to be included in the analysis.
  3. Existing barriers and other specific attenuation measures planned as part of the project should be taken into account.

Discuss the increase in exterior and interior noise levels and compare these levels to applicable Federal, State and local standards. Identify any areas or uses expected to exceed these standards. For areas in excess of standards, discuss the anticipated effects of the noise (speech interference, sleep disturbance, etc.).

Mitigation Measures. Where impacts have been identified, discuss how noise levels can be mitigated, suggesting specific techniques and designs (including barrier height, location and materials) for mitigation. If several alternative mitigation techniques are available, discuss their relative effectiveness and feasibility.

Unavoidable Effects. Identify any noise levels in excess of standards which cannot be feasibly mitigated.

Appendix. List all references. Include all assumptions. Identify the model used and input data. Provide all supporting sampling data and a map of sampling locations.

### Final Noise Reports

Project Description. Provide a brief description of the project.

Noise Standards. Summarize Federal, State, and local noise standards applicable to the project.

Ultimate Noise Levels. Calculate ultimate exterior noise levels from all sources. These levels should be consistent with the levels contained in the Preliminary Noise Report, unless assumptions have changed. If so, explain what assumptions have changed and why. Include a site plan with CNEL contours clearly shown.

Attenuation Measures Needed to Meet Standards. If applicable, discuss and depict specific attenuation measures to reduce exterior noise to established standards. If barriers are recommended, show the location on the site plan, if available, and provide a typical dimensional cross-section. Calculate the sound level assuming the barrier. Specify the following information you used in your calculations: Source height, road elevation at centerline, distance from centerline to barrier, elevation at base of barrier, distance from centerline to observer, building pad elevation, observer height.

Calculate the interior noise levels and attenuation, if any, needed to meet established standards. Provide the following information: Building square footage, sound transmission loss co-efficient, or EWNr values, and total noise reduction achieved.

Appendix. Show your calculations in the appendix.

## NOISE MODELING AND MEASUREMENT GUIDELINES

### Noise Modeling

The following guidelines are to be used in modeling noise levels for use in City Noise Reports.

Roadway Noise: Use the following model type and input data for roadway noise:

| PARAMETER               | FREEWAYS                            | HIGHWAYS  |
|-------------------------|-------------------------------------|---|
| Model Type              | FHWA Highway Noise Prediction Model | Irvine Modified FHWA Highway Noise Prediction Model |
| Traffic Characteristics | CalTrans-LARTS                      | Transportation Services Staff                       |
| Site Surface            | Soft                                | Soft  |

NOTE: Make adjustment for possible future reductions in vehicle noise levels in accordance with the Noise Element (1.9 dBA reduction.)

Railroad Noise: Wyle Laboratories Model, "Assessment of Noise Environments Around Railroad Operations."

Aircraft Noise: Indicate the model or base report used and any assumptions made.

### Noise Measurement

Noise measurements are required in association with Preliminary Noise Reports, unless specifically waived by Environmental Services staff based upon the project proposal and the known noise environment. The following guidelines are to be used in completing these measurements.

Equipment. All measurements should be accomplished with acceptable, calibrated equipment (i.e., ANSI Standards type 1 or 2). Identify the type of equipment used in the report's appendix.

Measurement Locations. Measurement locations shall be reviewed and approved by the Environmental Services staff. In general, avoid newly paved surfaces, and other reflective ground surfaces, where possible. Measurement locations should be situated at least 50 feet from the near travel land and avoid any existing shielding or reflective surfaces. The rationale for selecting the measurement locations, and a map depicting these locations is to be provided in the report's appendix.

Measurement Periods. For 24-hour measurements each of the 24 one hour Leq values should be determined. Periods for short term Leq measurements should be at least 15 minutes. Measurement periods for point sources should be based upon typical facility operations, and worst case examples.

Traffic Parameters. Vehicles should be counted by type during the entire measurement period. Speed should be measured for a representative sample of vehicles.

Aircraft Noise. Measurement of aircraft noise for  $L_{\max}10$  calculations should include a minimum of 60 flyovers. These should be representative of the aircraft type and typical operational conditions expected.

#### Noise Barriers

- o Design the barrier for combined noise sources, i.e., aircraft, railroad and highway.
- o Compute required attenuation separately for each type of vehicle, i.e., automobile, medium truck and heavy truck.
- o Assume the following observer/yard relationship:

| <u>Yard Depth (ft)</u> | <u>Observer Distance<br/>from Yard Edge (ft)</u> |
|------------------------|--|
| 0-25                   | 5  |
| greater than 25        | 0  |

- o For railroad noise, assume a source height of 10 feet for locomotives
- o For yards with building pads 5 feet or greater below grade, an observer location near the buildings exterior wall must also be calculated.
- o Use 5 foot observer height for ground floor observer, and 15 foot for second floor observer (modify as appropriate for varying road to pad grades).



**INFORMATION ON LEVELS OF  
ENVIRONMENTAL NOISE  
REQUISITE TO PROTECT  
PUBLIC HEALTH AND WELFARE  
WITH AN ADEQUATE MARGIN  
OF SAFETY**

**MARCH 1974**

**PREPARED BY  
THE U.S. ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF NOISE ABATEMENT AND CONTROL**

**This document has been approved for general  
availability. It does not constitute a standard,  
specification, or regulation.**

TABLE 3

SUMMARY OF HUMAN EFFECTS IN TERMS OF SPEECH COMMUNICATION, COMMUNITY REACTION, COMPLAINTS, ANNOYANCE AND ATTITUDE TOWARDS AREA ASSOCIATED WITH AN OUTDOOR DAY/NIGHT SOUND LEVEL OF 55 dB re 20 MICROPASCALS

| <u>Type of Effect</u>      | <u>Magnitude of Effect</u>  |
|----------------------------|---|
| Speech - Indoors           | 100% sentence intelligibility (average) with a 5 dB margin of safety  |
| - Outdoors                 | 100% sentence intelligibility (average) at 0.35 meters  |
|                            | 99% sentence intelligibility (average) at 1.0 meters  |
|                            | 95% sentence intelligibility (average) at 3.5 meters  |
| Average Community Reaction | None evident; 7dB below level of significant "complaints and threats of legal action" and at least 16 dB below "vigorous action" (attitudes and other non-level related factors may affect this result) |
| Complaints                 | 1% dependent on attitude and other non-level related factors  |
| Annoyance                  | 17% dependent on attitude and other non-level related factors   |
| Attitudes Towards Area     | Noise essentially the least important of various factors  |

(REF: Derived from Appendix D)

STATE OF CALIFORNIA

---

# General Plan Guidelines

---

2003



---

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

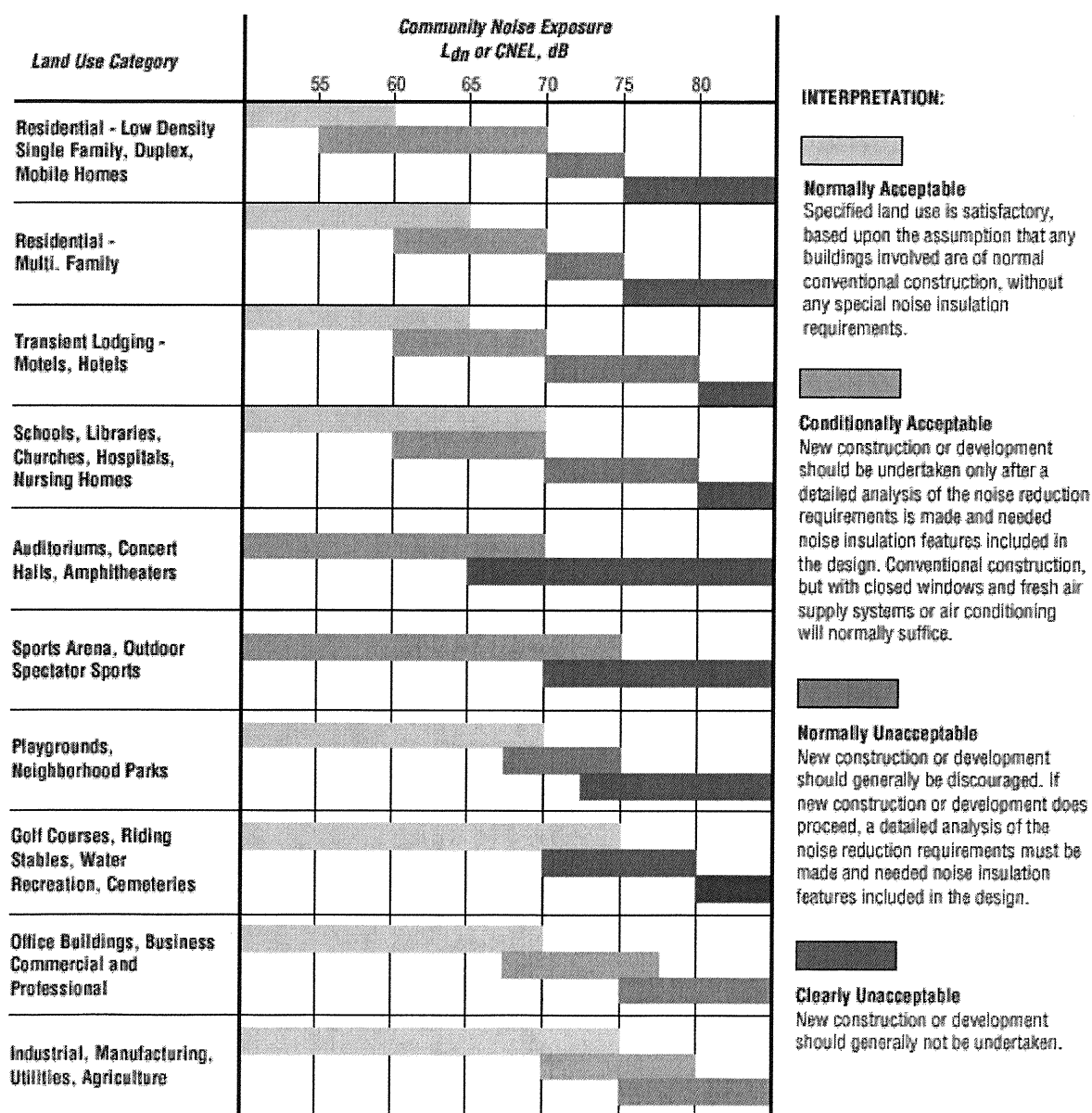
and 38275 of the California Vehicle Code, as well as excessive speed laws, may be applied to curtail this problem. Both the Highway Patrol and the Department of Health Services (through local health departments) are available to aid local authorities in code enforcement and training pursuant to proper vehicle sound-level measurements.

**Step 17:**

Commercial and public airports operating under a permit from Caltrans' Aeronautics Program are required

to comply with both state aeronautics standards governing aircraft noise and all applicable legislation governing the formation and activities of a local Airport Land Use Commission (ALUC). The function of the ALUC is, among other things, to develop a plan for noise-compatible land use in the immediate proximity of the airport. The local general plan must be reviewed for compatibility with this Airport Land Use Plan and amended if necessary (Public Utilities Code §21676). Therefore, the developers of the noise element will need to coordinate their activities with the local ALUC to

**FIGURE 2**



| <b>Table 1</b>  |   |  |
|---|---|--|
| <i>Type of Correction</i>                                       | <i>Description</i>  | <i>Amount of Correction to be Added to Measured CNEL in dB</i> |
| <b>Seasonal Correction</b>                                      | Summer (or year-round operation)  | <b>0</b>   |
|   | Winter only (or windows always closed)  | <b>- 5</b>   |
| <b>Correction for Outdoor Residual Noise Level</b>              | Quiet suburban or rural community (remote from large cities and from industrial activity and trucking).   | <b>+ 10</b>  |
|   | Quiet suburban or rural community (not located near industrial activity).   | <b>+ 5</b>   |
|   | Urban residential community (not immediately adjacent to heavily traveled roads and industrial areas).  | <b>0</b>   |
|   | Noisy urban residential community (near relatively busy roads or industrial areas).   | <b>- 5</b>   |
|   | Very noisy urban residential community.   | <b>- 10</b>  |
| <b>Correction for Previous Exposure and Community Attitudes</b> | No prior experience with the intruding noise.   | <b>+ 5</b>   |
|   | Community has had some previous exposure to intruding but little effort is being made to control the noise. This correction may also be applied in a situation where the community has not been exposed to the noise previously, but the people are aware that bona fide efforts are being made to control the noise. | <b>0</b>   |
|   | Community has had considerable previous exposure to the intruding noise and the noise maker's relations with the community are good.  | <b>- 5</b>   |
|   | Community aware that operation causing noise is very necessary and it will not continue indefinitely. This correction can be applied for an operation of limited duration and under emergency circumstances.  | <b>- 10</b>  |
| <b>Pure Tone or Impulse</b>                                     | No pure tone or impulsive character.  | <b>0</b>   |
|   | Pure Tone or impulsive character present.   | <b>+ 5</b>   |

ensure that compatible standards are utilized throughout the community and that the noise element develops as part of a coherent master plan, of which the ALUP forms an integral component.

*Step 18:*

“The adopted noise element shall serve as a guideline for compliance with the State’s noise insulation standards.” (§65302(f))

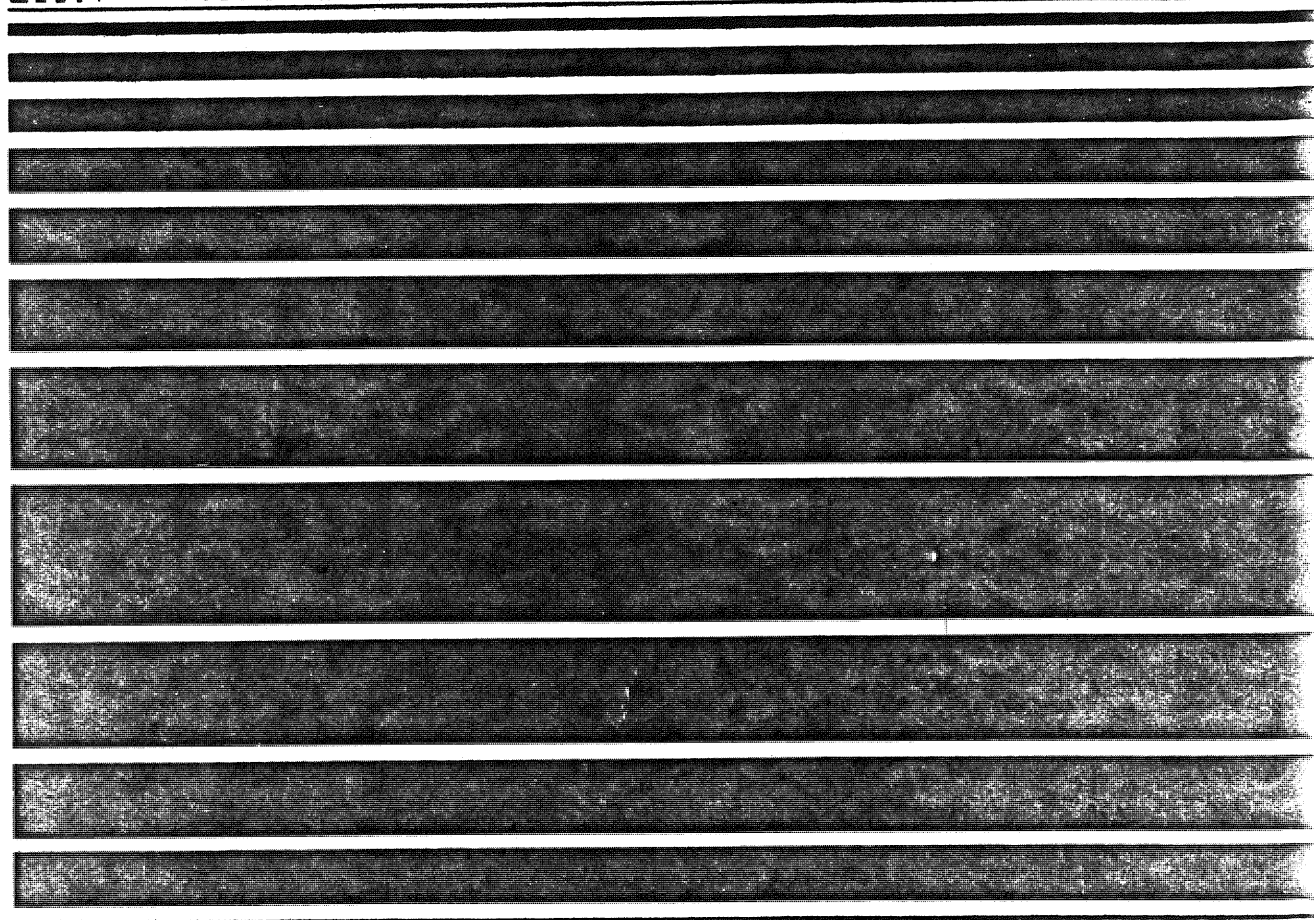
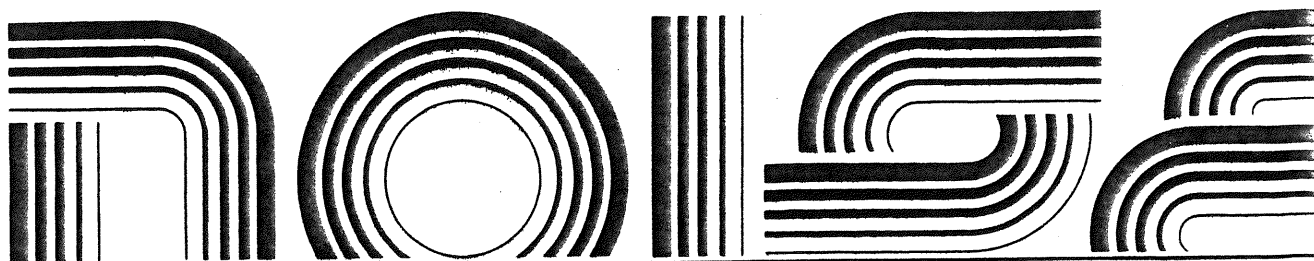
Recognizing the need to provide acceptable habitation environments, state law requires noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or Ldn) noise exposure contours. It is a function of the noise element to provide noise contour information around all major sources in support of the sound transmission control standards (Appendix, Chapter 2-35, Part 2, Title 24, California Code of Regulations).



REFERENCE 14

**FHWA-RD-77-108  
FHWA HIGHWAY TRAFFIC NOISE  
PREDICTION MODEL**

# HIGHWAY



Obtained From  
GLOBAL ENGINEERING DOCUMENTS  
2805 McGraw Ave., Irvine, CA 92714  
(714) 261-1455 (800) 854-7179



**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

|  |  |   |           |
|--|--|---|-----------|
| 1. Report No.<br>FHWA-RD-77-108  | 2. Government Accession No.                          | 3. Recipient's Catalog No.  |           |
| 4. Title and Subtitle<br>FHWA HIGHWAY TRAFFIC NOISE PREDICTION MODEL   |  | 5. Report Date<br>December 1978   |           |
|  |  | 6. Performing Organization Code<br>33F4602  |           |
| 7. Author(s)<br>T. M. Barry and J. A. Reagan   |  | 8. Performing Organization Report No.<br>FHWA-RD-77-108   |           |
|  |  | 10. Work Unit No.   |           |
| 9. Performing Organization Name and Address<br>Federal Highway Administration<br>Office of Research, Office of Environmental Policy<br>Washington, D.C. 20590  |  | 11. Contract or Grant No.<br>Staff Study  |           |
|  |  | 13. Type of Report and Period Covered<br>Final Report<br>June 1977-December 1978  |           |
| 12. Sponsoring Agency Name and Address*<br>U.S. Department of Transportation<br>Federal Highway Administration<br>Office of Research, Office of Environmental Policy<br>Washington, D.C. 20590   |  | 14. Sponsoring Agency Code  |           |
|  |  | 15. Supplementary Notes   |           |
| 16. Abstract<br><p>This report presents the FHWA method for predicting noise generated by constant speed highway traffic. The report is intended to be a users' manual as well as a reference document detailing the development, use, and limitations of the prediction method. In the main body of the report, the prediction procedure is presented in a step-by-step fashion and includes numerous example problems designed to highlight important concepts and features. For those interested in the theoretical development of the model, an extremely detailed derivation is presented in the appendices. The basis of the model is the equivalent sound level, <math>L_{eq}</math>, although an adjustment for conversion to <math>L_{10}</math> is provided. The method incorporates three classes of vehicles--automobiles, medium trucks, and heavy trucks. Adjustments for absorptive ground covers and finite length barriers are also included. Certain special topics such as nonuniform highway sites and determination of equivalent day-night levels, <math>L_{dn}</math>, are also included.</p> |  |   |           |
| 17. Key Words<br>Traffic Noise, Traffic Noise Prediction, Traffic Noise Abatement  |  | 18. Distribution Statement<br>This document is available to the public through: National Technical Information Service, Springfield, Virginia 22161 |           |
| 19. Security Classif. (of this report)<br>Unclassified   | 20. Security Classif. (of this page)<br>Unclassified | 21. No. of Pages<br>272   | 22. Price |

# COUNTY OF ORANGE



## LAND USE/NOISE COMPATIBILITY MANUAL

**ADOPTED: SEPTEMBER 18, 1984**

**AMENDMENT 93-1: DECEMBER 14, 1993**  
**BOARD OF SUPERVISORS RESOLUTION NO. 93-1391**



## b. Technical Issues

## (1) Traffic Noise Level Predications

Although the same FHWA-RD-77-108 methodology generally applies, CALTRANS will use the calculated equivalent levels (Leq in dBA) of traffic noise at an assumed maximum hourly flow rate and may choose to rely on base-readings from 50-ft to the centerline of the nearest traffic lane. CALTRANS' allowable standard of 67 dBA for out-door living area may and may not exceed County's CNEL of 65-dBA based on a modified approach. (see p B-1 of this Manual)

## (2) Receiver Height

This height is generally placed at 5-feet above ground level for all observers.

## (3) Height of Noise Source

County prefers the slightly more conservative approach in placing the heights of equivalent noise sources of motor vehicles as follows (for slightly higher requirement in barrier heights);

|  |                              |
|--|------------------------------|
| Passenger vehicles                                   | <u>2</u> – feet above ground |
| Medium trucks, including<br>busses and up to 3-axles | <u>4</u> – feet above ground |
| All Heavy-duty truck                                 | <u>8</u> – feet above ground |

## (4) Line of Sight requirement of CALTRANS

County allows the inclusion of this condition in its requirement and stipulates further that the right-hand exhaust stack should be considered 3-feet closer to an observer than the vehicle which is assumed to be at the centerline of the nearest lane. The height of the exhaust stack will be 11.5 feet with the observer in his outdoor living area at 5-ft above ground level.

NOTE: Projects located near or adjacent to proposed transportation corridors freeways have notification procedures similar to those required for airport noise. A notice concerning possible impacts of the proposed Transportation Corridor (illustrated in Exhibit V-7) must be recorded for the project prior to recordation of the project. Another notification procedure is a Statement of Acknowledgment which is signed by home buyers, renters and lessees, acknowledging the presence of the proposed corridor. Exhibit V-8 illustrates the document. The process for execution/recordation of both documents is identical to aircraft noise notification procedures, fully described in Section VI of this manual.