

5.11 TRANSPORTATION AND TRAFFIC

This section of the DSEIR evaluates the potential for implementation of the Modified Project to result in transportation and traffic impacts beyond what was analyzed in the Certified EIR and approved in the Approved Project. The analysis in this section is based in part on the following technical report(s):

- *Great Park Neighborhoods General Plan Amendment / Zone Change and VTTM 17008 Amendment Traffic Impact Analysis*, Urban Crossroads, May 2011 (the "Traffic Study").
- *Great Park Neighborhoods Great Park Neighborhoods Vesting Tentative Tract Maps 17364, 17283 Amended, 17366, 17368, and 17202 Traffic Impact Analysis*, Urban Crossroads, May 2011.

A complete copy of each of these studies is included in the Technical Appendices to this DSEIR as Appendix M.

Consistent with the Traffic Study Scope of Work (the "Scope of Work") (Exhibit 1.1 to the Traffic Study), the Traffic Study performed analyses for years 2015, 2030, and Post-2030 for the Modified Project With Density Bonus Units scenario and the Modified Project Without Density Bonus Units scenario. Since the Modified Project "With Density Bonus Units" represents the Modified Project as that term is used in this DSEIR, it is the only scenario analyzed in this section. For consistency with the terminology used in this DSEIR, this section will use the term "Modified Project", which has the same meaning in this section and the Traffic Study as "Modified Project With Density Bonus" or as "Modified Project Including Density Bonus".

The Traffic Study analyzes projected impacts and proposed mitigation measures for the Modified Project at years 2015, 2030, and Post-2030. It concludes that with implementation of the proposed mitigation measures, impacts from the Modified Project will be reduced to a level of less than significant. However, some of the mitigation measures would need to be implemented by other jurisdictions (such as the City of Lake Forest and CalTrans), and the City cannot control implementation of such measures. Should the identified mitigation measures not be implemented for reasons beyond the City's control, traffic impacts could remain significant and unavoidable.

The Vesting Tentative Tract Maps 17364, 17283 Amended, 17366, 17368, and 17202 Traffic Impact Analysis was prepared in compliance with the NITM Ordinance and analyzed the five tentative tract maps in the interim year 2015 scenario. Results of this analysis are consistent with the findings of the interim year 2015 GPA/ZC analysis. The VTTM analysis further studies project specific details such as intersection lane geometry and site access for each map.

5.11.1 Environmental Setting

5.11.1.1 Analysis Scope and Methodology

Pursuant to the approved Scope of Work, the Traffic Study identifies potential impacts of the Modified Project based on existing traffic conditions and years 2015, 2030 and Post-2030 future traffic conditions. The year 2015 analysis compares the Modified Project in 2015¹ (the "2015 Modified Project") with the conditions that

¹ As discussed in Section 6.0 of the Traffic Study, 2015 Modified Project uses were assumed to include 3,625 dwelling units, 11,000 square feet of child care uses, 25,000 square feet of church/synagogue, 30.3 acres of neighborhood park uses 48,700 square feet of medical and science uses, 220,000 square feet of retail uses, two 1,000 student K-8 schools, institutional/education uses (capacity of 4,161 students), 263.7 acres of agricultural uses, and

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would exist on the Proposed Project Site in 2015 without the Modified Project ("2015 Without Modified Project"). The year 2015 analysis is below in Section 5.11.4.3. The year 2030 analysis compares traffic conditions for the Modified Project in 2030 ("2030 Modified Project") to 2030 traffic conditions for the development in the Certified EIR ("2030 Without Modified Project").² The year 2030 analysis is below in Section 5.11.4.5. The post-2030 analysis compares traffic conditions for the Modified Project in Post-2030 ("Post-2030 Modified Project") to traffic conditions for the development in the Certified EIR ("Post-2030 Without Modified Project").³ The Post-2030 analysis is below in Section 5.11.4.4. The baseline for this DSEIR is the Approved Project, but the analysis within the Traffic Study and this DSEIR present a more conservative analysis because the density bonus units are not included in the "Without Modified Project" scenarios even though they are a vested Part of the Approved Project. For informational purposes only, this DSEIR also compares the existing conditions in the study area ("Existing") to full buildout of the Modified Project as if such buildout would occur tomorrow ("Existing-Plus-Modified Project"). The Existing-Plus-Modified Project analysis is below in Section 5.11.4.2.

Existing traffic conditions are based on 2010 and 2011 intersection peak hour and 24-hour roadway segment traffic counts. Future traffic conditions have been prepared using the Irvine Transportation Analysis Model, Version 8.4-10 ("ITAM 8.4-10") and the City of Lake Forest Traffic Analysis Model ("LFTAM"). For this SEIR, the LFTAM was applied to produce traffic forecast data for roadways and intersections that are analyzed and are located within the City of Lake Forest, and the ITAM 8.4-10 was applied to all other locations in the traffic analysis study area.

The three future cumulative growth settings (2015, 2030 and Post-2030) are based on the existing circulation system, plus improvements that are planned to be in place in each future time frame, as well as the land use and development growth that is projected for each future time frame.

The North Irvine Transportation Mitigation ("NITM") Program was established in 2003 to identify mitigation and provide a funding mechanism for transportation improvements and mitigation needed in North Irvine, including in and around the traffic analysis study area for the Modified Project. The circulation system improvements that are programmed to be fully funded by the NITM Program were included in the year 2015, 2030 and Post-2030 scenarios analyzed in the Traffic Study. Circulation system improvements that are only partially funded by the NITM Program are not assumed into the starting point for evaluating the Modified Project's impacts except for Post-2030 conditions.

For the Modified Project impacts that this section identifies as exceeding the applicable thresholds of significance, this section first considers the existence, if any, partially funded NITM improvements as mitigation for the Modified Project's impacts.

Development projects that have been approved in and around the study area have been included in the future traffic conditions analyzed in this section and the Traffic Study, along with any circulation system improvements related to those approved projects. Recently approved projects assumed in this analysis include the tract map for Planning Area 40, Witherspoon "TSG" (TAZ 228) and IRWD (TAZ 842), the IBC Vision Plan, Planning Area 9, and recently evaluated Orange County Great Park access features.

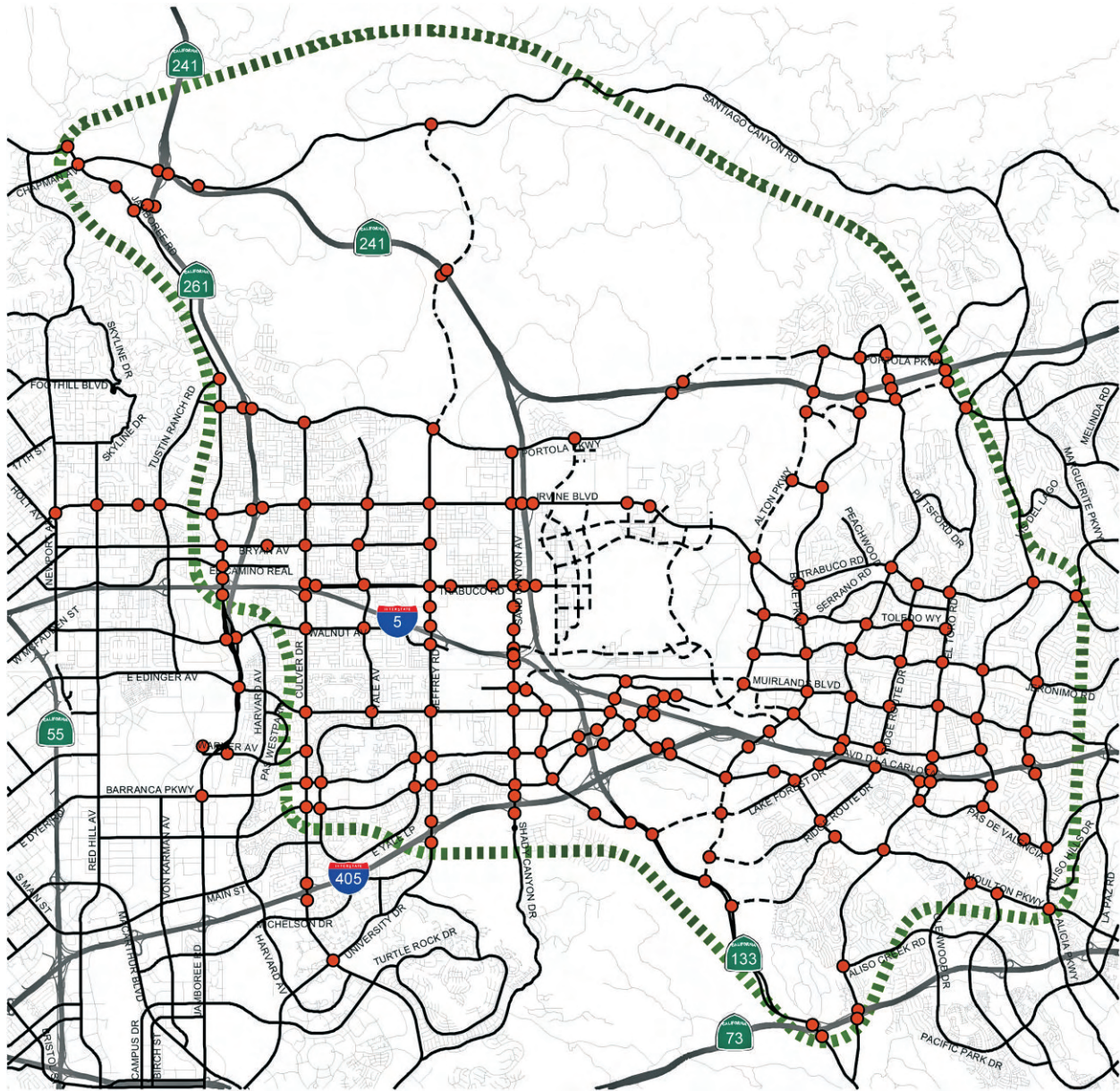
578 acres of open space. The Traffic Study refers to this scenario as the "Interim Year 2015 without the Originally Approved Project."

² The Traffic Study refers to the 2030 Without Modified Project as "Long Term Year 2030 without the Modified Project."

³ The traffic study refers to the Post 2030 Without Modified Project as "General Plan Buildout (Post 2030) without Project GPA/ZC (Originally Approved Project – Baseline)."

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Traffic Analysis Study Area



LEGEND:

- Intersection Analysis Location
- NITM Program Study Area Boundary

0 11,000
Scale (Feet)



Source: Urban Crossroads 2011

Great Park Neighborhoods Draft Supplemental EIR

City of Irvine • **Figure 5.11-1**

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5.11.1.2 Study Area

Figure 5.11-1 illustrates the study area that was defined in the approved Scope of Work and that was applied in the Traffic Study analysis that is summarized in this section. The broad study area includes analysis locations in the Cities of Lake Forest, Laguna Hills, Laguna Woods, Mission Viejo, Aliso Viejo, and Tustin. The analysis results verify that the study area encompasses potential traffic impacts associated with the Modified Project.

5.11.1.3 Performance Criteria

Traffic operations of roadway facilities are described with the term "Level of Service" ("LOS"). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS "A", representing completely free-flow conditions, to LOS "F", representing breakdown in flow resulting in stop-and-go conditions. LOS "E" represents operations at or near capacity, an unstable level, where vehicles are operating with the minimum spacing for maintaining uniform flow. Table 5.11-1 summarizes the volume/capacity (V/C) ranges for LOS "A" through "F" for arterial roads and freeway/tollway ramps. The V/C ranges listed for arterial roads are designated in the Orange County Transportation Authority ("OCTA") Congestion Management Program ("CMP") as well as the General Plan for the City of Irvine and for the other jurisdictions within the traffic analysis study area. The V/C ranges listed for freeway/tollway segments are based on the V/C and LOS relationships specified in the HCM for basic freeway sections.

*Table 5.11-1
Volume/Capacity Ratio Level of Service (LOS) Ranges*

LOS	Volume/Capacity (V/C) Ratio Range	
	Arterial Roads	Freeway Segments
A	0.00 - 0.60	0.00 - 0.30
B	0.61 - 0.70	0.31 - 0.50
C	0.71 - 0.80	0.51 - 0.71
D	0.81 - 0.90	0.72 - 0.89
E	0.91 - 1.00	0.90 - 1.00
F	Above 1.00	Above 1.00

Sources: Highway Capacity Manual, 2000 and OCTA Congestion Management Program, 2009.

The overall performance criteria applied in this analysis are summarized in Table 5.11-1. The criteria include components for arterial roadways, intersections, freeway/tollway mainline segments and freeway/tollway ramps, and are based on LOS calculation methodologies and performance standards that have been adopted by the governing jurisdictions for the study area and by the OCTA as part of the CMP. When analyzing individual locations on the study area circulation system, the criteria of the jurisdiction in which a given facility is located has been applied in this study. As required in the City's NITM Ordinance, the performance standards applied in this study are consistent with those approved in the 2003 NITM Program Nexus Study (the "Nexus Study").

The arterial roadway criteria involve the use of average daily traffic ("ADT") V/C ratios. The criteria are supplemented by the City of Irvine's Link Capacity Analysis guidelines which require that arterial deficiencies identified based on ADT V/C ratios be further examined using peak hour data.

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The intersection capacity utilization (“ICU”) analysis is based on peak hour volumes and uses individual turn movements and the corresponding intersection lane geometry to estimate level of service. Use of the ICU methodology is consistent with the City of Irvine’s traffic analysis guidelines, and, pursuant to standard practice, the ICU methodology assumes that intersections are signalized.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway/tollway ramp intersections at Sand Canyon Avenue/I-5, Irvine Boulevard/SR-133 interchanges and Trabuco Road/SR-133 interchanges are analyzed in this study using the HCM methodology in addition to the ICU methodology. In the HCM intersection analysis methodology, the LOS at an intersection location is determined based on the estimated average delay experienced by all traffic using the intersection. The vehicle delay ranges that correspond to LOS “A” through “F” as specified in the HCM area are summarized in Table 5.11-2.

*Table 5.11-2
HCM Intersection Delay Level of Service (LOS) Ranges*

<i>LOS</i>	<i>Average Vehicle Delay Signalized</i>	<i>Average Vehicle Delay Unsignalized</i>
A	0 - 10.00 seconds	0 - 10.00 seconds
B	10.01 - 20.00 seconds	10.01 - 15.00 seconds
C	20.01 - 35.00 seconds	15.01 - 25.00 seconds
D	35.01 - 55.00 seconds	25.01 - 35.00 seconds
E	55.01 - 80.00 seconds	35.01 - 50.00 seconds
F	Above 80.00 seconds	Above 50.00 seconds

Source: Highway Capacity Manual, 2000.

The operations of unsignalized intersections on-site have been evaluated using the methodology described in Chapter 17 of the HCM. The level of service rating is based on the weighted average control delay expressed in seconds per vehicle. At two-way or side-street stop-controlled intersections, level of service is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, level of service is computed for the intersection as a whole. All unsignalized study area intersections have utilized the Traffix software (Version 8.0 R1, 2008).

Freeway ramps are analyzed based on AM and PM peak hour ramp volumes taken from intersection volumes at each location in the study area where freeway ramps intersect the arterial system. The peak hour ramp volumes are applied together with the ramp capacities are summarized in Table 5.11-3 to calculate AM and PM peak hour ramp V/C ratios and corresponding LOS values. The freeway ramp analysis differs from the peak hour intersection analysis which includes ramp intersections with arterial streets. The ramp analysis involves the peak hour V/C of the ramp itself, whereas the intersection analysis involves the performance of the ramp intersection with the arterial street.

LOS “E” (V/C not to exceed 1.00) is the performance standard specified in the CMP for arterials that are part of the CMP roadway network, and is applied in this analysis as the performance standard for CMP arterials outside the City of Irvine, Irvine Planning Area 33 (Spectrum 1/Irvine Center) and Planning Area 36 (Irvine Business Complex/IBC) intersections, the Bake Parkway/I-5 ramp intersections, Alton Parkway at Irvine Boulevard, Bake Parkway at Irvine Boulevard, the Lake Forest Drive/I-5 southbound ramp – Avenida de la Carlota, and Lake Forest/Irvine Center Drive. LOS “D” (V/C not to exceed 0.90) is the performance standard for the remainder of City of Irvine and for the remainder of the arterial roadway system in the study area.

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Because freeway ramps and mainline segments are part of the CMP highway network, the Traffic Study uses LOS “E” as being acceptable. The freeway mainline and freeway ramp criteria are based on peak hour V/C ratios. The freeway mainline and ramp capacities are based on information contained in the Caltrans Highway Design Manual and the Caltrans Ramp Meter Design Manual. This methodology and criteria have been used for other traffic impact analyses throughout Orange County.

For impact analysis purposes, the significance criteria are based on the LOS and either the increase in ICU or V/C due to the Modified Project.

For the roadway link V/C and intersection ICU analyses, a significant impact occurs if the roadway link or intersection is deficient without the Project (LOS “F” for CMP intersections or LOS “E” or “F” for all roadway links and all other intersections), and the Project contribution to the “with project” ICU or V/C is .02 or more except at CMP locations outside the City of Irvine and at County of Orange locations. A significant impact also occurs if the intersection is not deficient without the Project (LOS “E” for CMP intersections or LOS “D” or better for all other intersections), and the Project contribution to the “with project” ICU or V/C causes it to become deficient (LOS “F” for CMP intersections or LOS “E” or “F” for all other intersections).

5.11.1.4 Relationship to Other Studies

Several recent studies that have been carried out for locations in the vicinity of the Proposed Project Site are of relevance to the traffic analysis presented here. The projects and studies briefly summarized below have all been approved and have been incorporated into the traffic models that are applied in the Traffic Study that is summarized in this section.

NITM Nexus Study (Reference 1) and NITM Five-Year Review (Reference 2). The nexus study summarized in the first report (completed in April 2003) was carried out as part of NITM, which established a funding mechanism for the transportation improvement mitigation measures identified in the environmental impact reports for three future development projects in north Irvine: 1) Spectrum 8/PA40, 2) Irvine Northern Sphere Area (PAs 5B, 6, 8A and 9), and 3) the Orange County Great Park. The second report (completed in June 2010) summarized the results of a comprehensive NITM review. The circulation system improvements that are programmed to be fully funded by NITM are included in the year 2015, year 2030 and Post-2030 scenarios analyzed in the Traffic Study and those with fair share funds from NITM are included in the Post-2030 scenario analyzed in the Traffic Study.

City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study (Reference 3) and City of Irvine Planning Area 40/Planning Area 12 (Traveland Site) GPA/ZC and Planning Areas 1 and 9 Density Transfer Traffic Study (Reference 4). These reports, which were completed in October 2010 and June 2008, respectively, presented the findings of traffic studies carried out to determine the impacts of an amendment to the City General Plan and Zoning Code (“GPA/ZC”) for City of Irvine Planning Areas 40 and 12, as well as a subsequent VTTM for a major portion of PA40. The land use and circulation assumptions for PA40 VTTM 17277 and the PA40/PA12 GPA/ZC project are applied in the Traffic Study as part of the background conditions.

Bake Parkway – Marine Way Circulation System Amendment Traffic Study (Reference 5). This report, which was completed in June 2008, identified potential traffic circulation needs associated with relocation of the Bake Parkway/Marine Way intersection from its original General Plan location to a location further northeast on Bake Parkway. The Bake Parkway/Marine Way reconfiguration associated with this approved Circulation System Amendment and the related roadway improvements identified in the traffic study are assumed in the background conditions applied in the Traffic Study.

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Vesting Tentative Tract Map 17283 (VTTM 17283) Portion of Life Long Learning District (LLD) Traffic Impact Analysis (Reference 6). This report, completed in October 2008, analyzed the potential traffic impacts of the non-residential land uses associated with VTTM 17283, which covers a portion of the Proposed Project Site (Districts 1 North and 1 South).

5.11.1.5 Existing Roadway Network

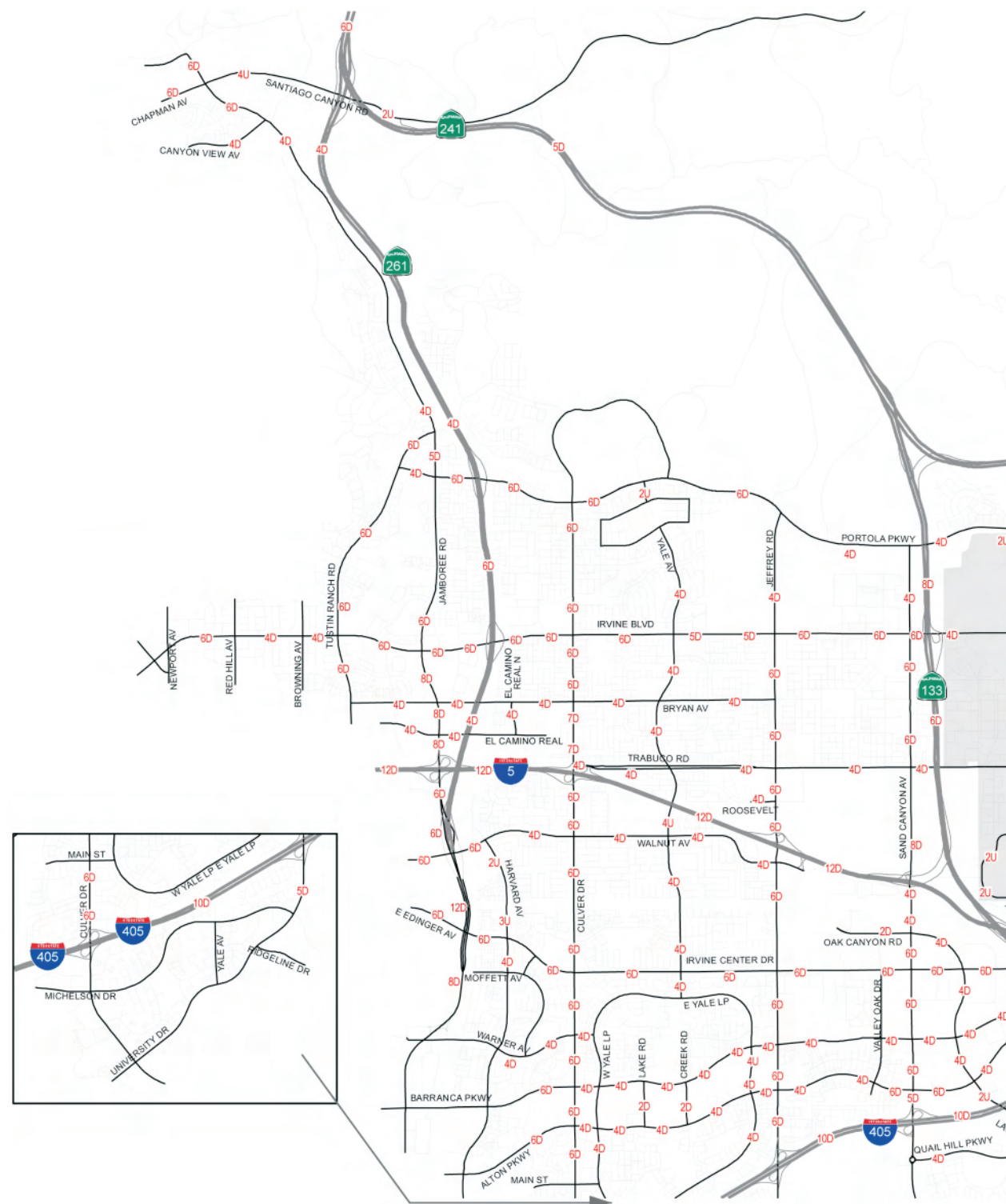
Figure 5.11-2 identifies the existing circulation system in the study area together with existing midblock lanes on arterial roadways and the number of existing travel lanes on freeway/tollway mainline segments. Current average daily traffic (“ADT”) counts for midblock arterial roadway segments and AM and PM peak hour turn movement counts at intersection locations in the study area were conducted in 2010 and 2011. ADT midblock and peak hour intersection traffic count worksheets for each location that was analyzed on the arterial roadway system in the study area are included in Appendix 4.1 to the Traffic Study (Appendix M). Existing freeway mainline count data is consistent with the City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study, prepared by Austin-Foust Associates, Inc. (October, 2010), which was taken from the Caltrans Performance Management System (“PeMS”). Data was extracted for a typical five-day workweek (April 19-23, 2010) and counts were then averaged.

5.11.1.6 Existing Average Daily Traffic Volumes and Levels of Service

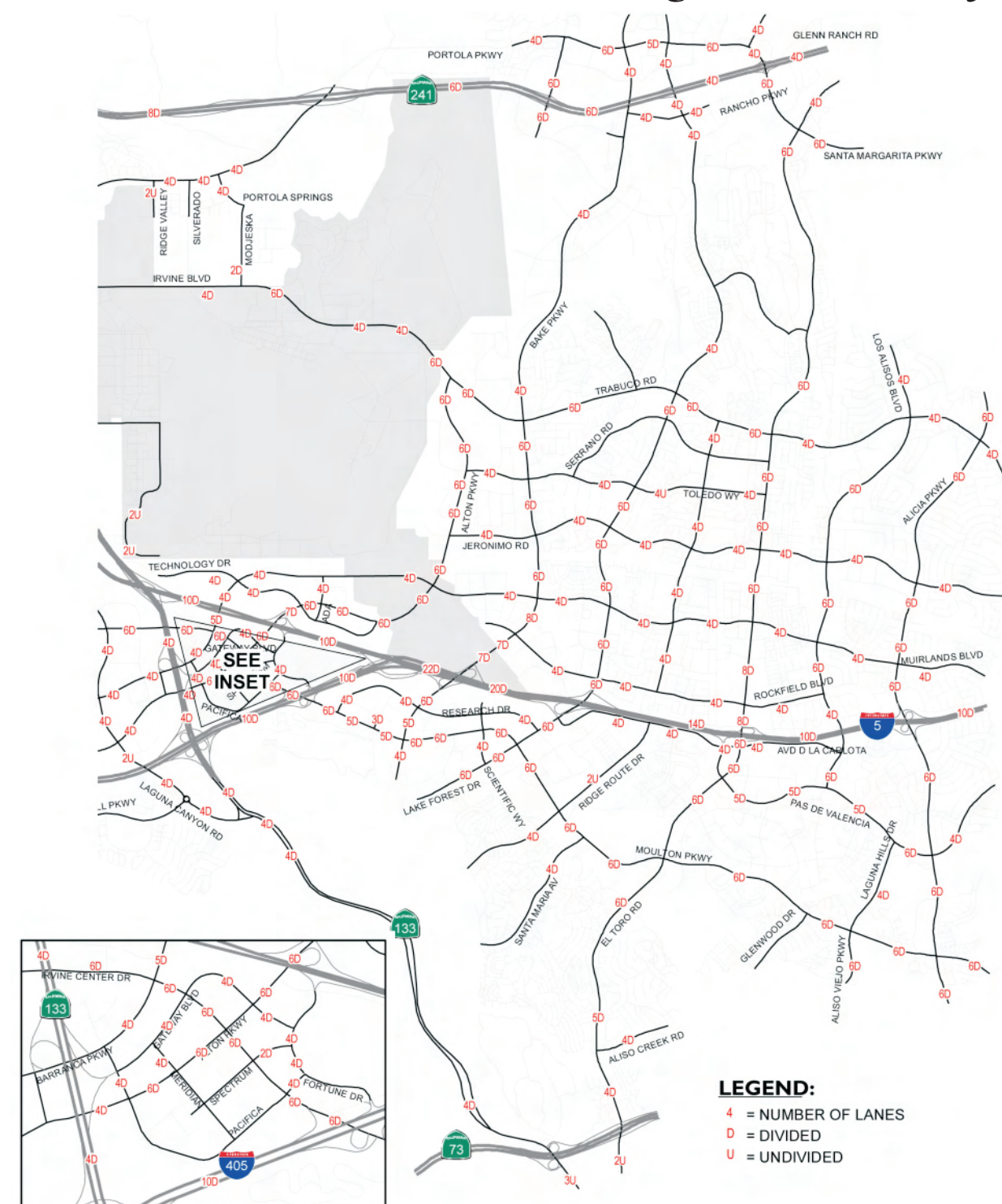
Current ADT volumes and corresponding V/C ratios on the arterial roadway system and the freeway/tollway system in the study area are illustrated in Figures 5.11-3 and 5.11-4. Based on the ADT V/C LOS performance criteria above, the arterials in the study area generally appear to operate at acceptable levels of service with the exception of the following locations:

- Alicia Pkwy (south of Jeronimo Rd)
- Alicia Pkwy (north of Muirlands Bl)
- Alicia Pkwy (I-5 NB Ramps to Muirlands Bl)
- Alicia Pkwy (south of I-5 SB Ramps)
- Avenida Carlota (Paseo de Valencia to El Toro Rd)
- Bake Pkwy (north of Commercentre Dr)
- Bake Pkwy (north of Irvine Bl)
- Bake Pkwy (north of Muirlands Bl)
- Bake Pkwy (south of Rockfield Bl)
- Culver Dr (Main St to San Leandro)
- Culver Dr (San Leandro to I-405 NB Ramps)
- El Toro (I-5 SB Ramps to Avenida Carlota)
- El Toro (north of SR-73)
- El Toro (south of SR-73)
- Jamboree Rd (north of Michelle Dr)
- Jamboree Rd (south of Michelle Dr)
- Laguna Canyon Rd/SR-133 (north of SR-73 NB Ramps)
- Lake Forest (south of Rockfield)
- Portola Pkwy (south of SR-241 SB Ramps)
- Sand Canyon (north of Oak Canyon)
- Santa Margarita (south of SR-241)
- University Dr (I-405 SB Ramps to Michelson Dr)

Existing Circulation System



West Study Area



East Study Area

LEGEND:
 4 = NUMBER OF LANES
 D = DIVIDED
 U = UNDIVIDED

0 6,000
 Scale (Feet)

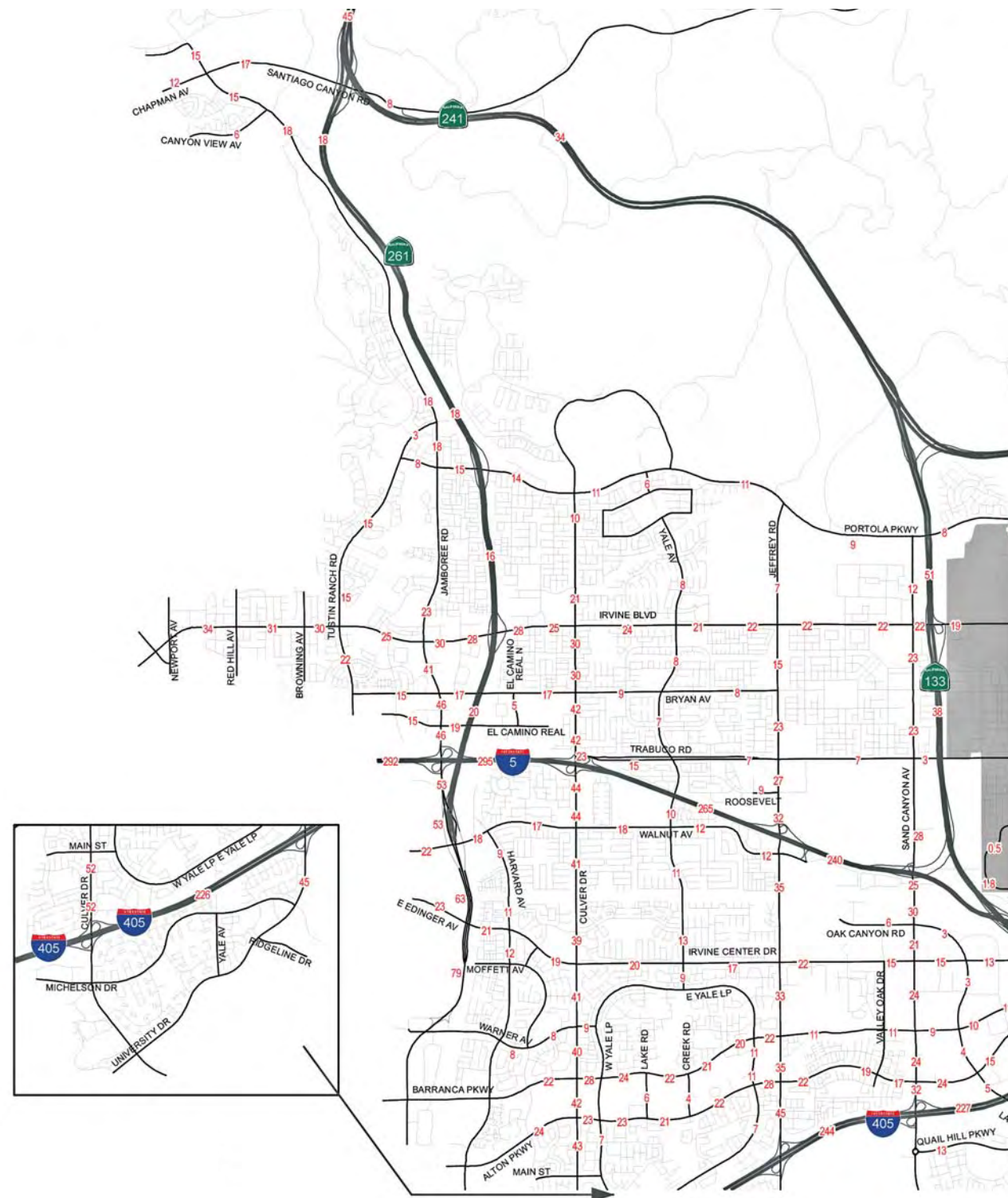


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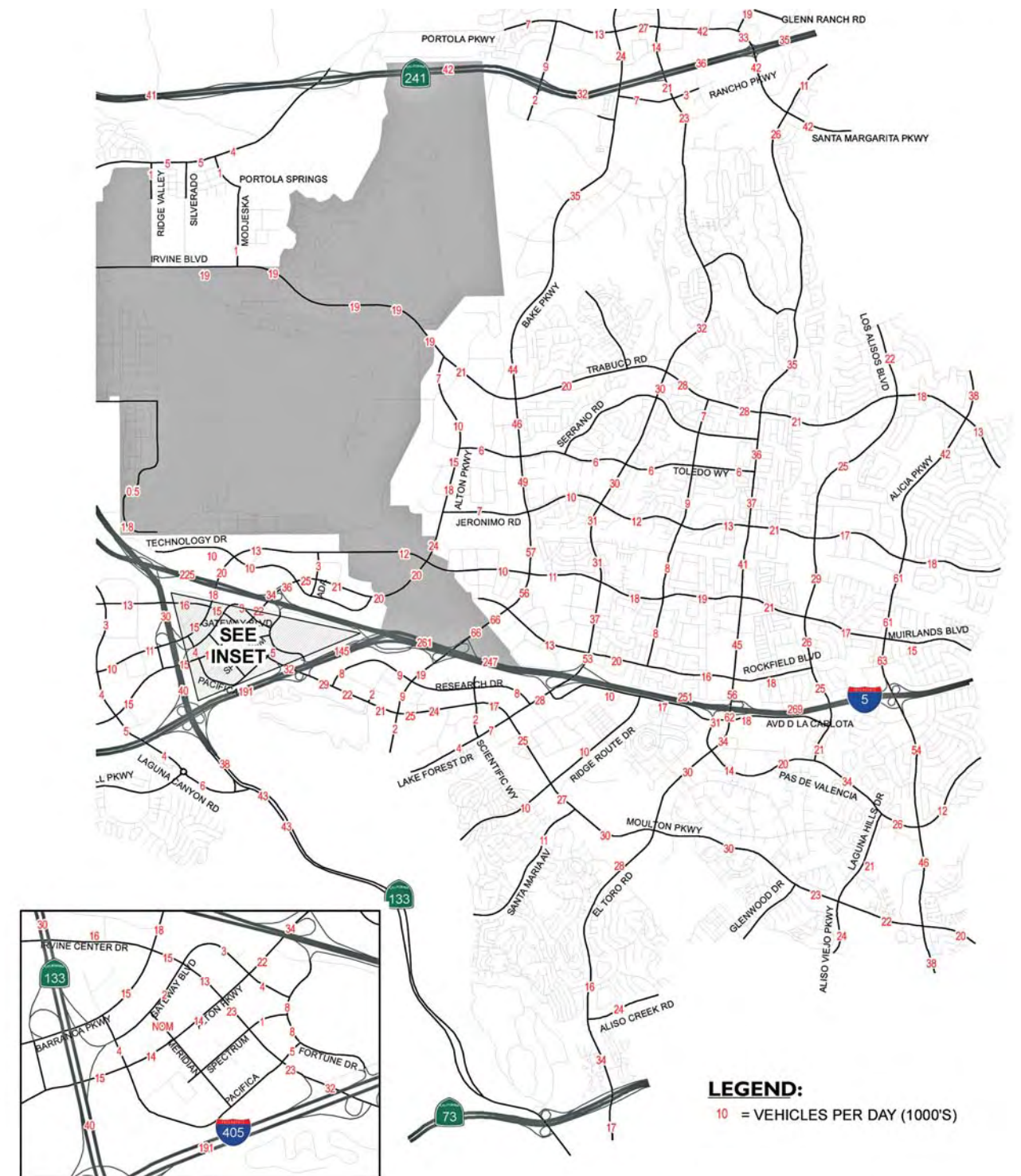
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Existing ADT Volumes



West Study Area



East Study Area

LEGEND:
10 = VEHICLES PER DAY (1000'S)

0 6,000
Scale (Feet)

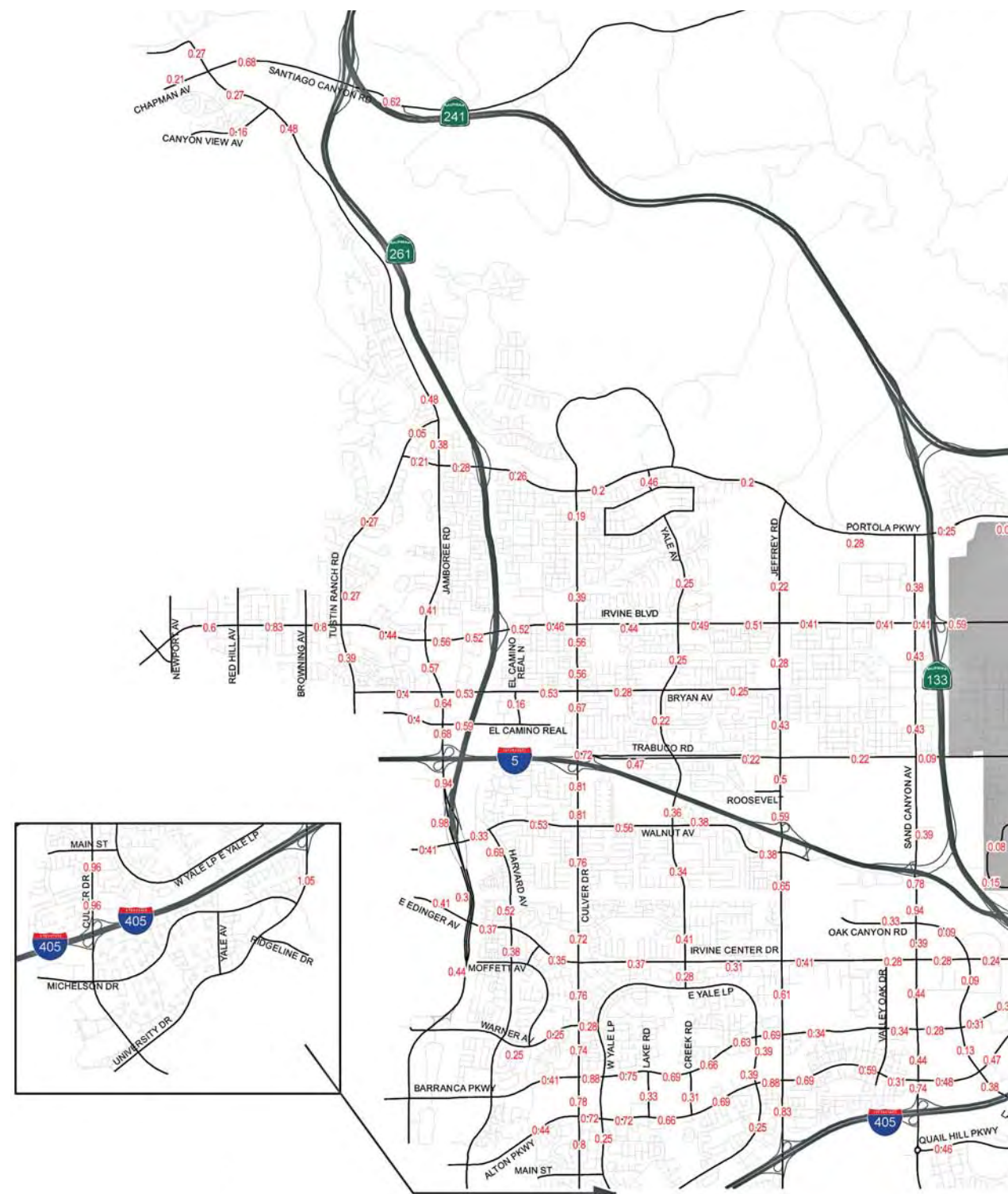


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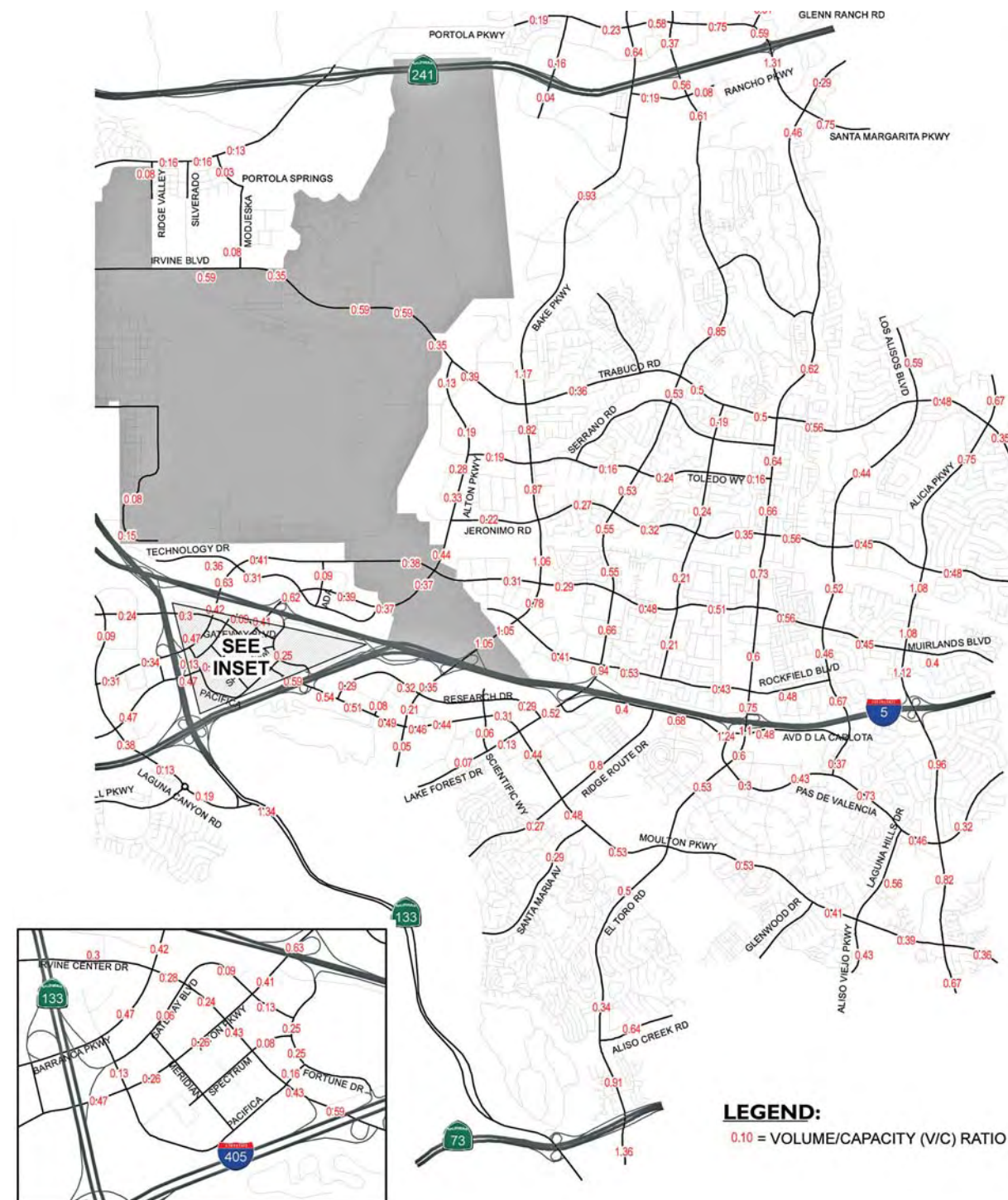
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Existing ADT V/C Ratios



West Study Area



East Study Area

LEGEND:
0.10 = VOLUME/CAPACITY (V/C) RATIO

0 6,000
Scale (Feet)



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5.11.1.7 Existing Peak Hour Intersection Levels of Service

Existing ICU values were calculated for the intersections illustrated in Figure 5.11-5 using peak hour traffic count data in combination with the existing lane configuration of each location. Use of the ICU methodology is consistent with the traffic analysis guidelines of the City of Irvine and the OCTA CMP, and, by standard practice, the ICU methodology assumes that intersections are signalized. Based on the intersection LOS performance criteria outlined above, the study area intersections generally appear to operate at acceptable levels of service during peak hours with the exception of the following intersection:

- Laguna Canyon Rd/SR-133 at SR-73 Northbound Ramps

5.11.1.8 Existing Freeway Ramp Levels of Service

Existing AM and PM peak hour ramp volumes were taken from intersection counts at each location in the study area where freeway ramps intersect the arterial system. The observed peak hour ramp volumes were applied together with the ramp capacities described above to calculate existing AM and PM peak hour ramp V/C ratios and corresponding LOS values. The freeway ramp analysis presented here differs from the above peak hour intersection analysis in that the ramp analysis here involves the peak hour V/C of the ramp itself, whereas the intersection analysis involves the ICU value of the intersection of the ramp with the arterial street.

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using the HCM methodology in addition to the ICU methodology. The resulting existing conditions peak hour levels of service based on the HCM methodology are summarized in Table 5.11-3 (HCM intersection LOS calculation worksheets are included in Appendix 4.4 to the Traffic Study). As the summary table indicates, each of the ramp intersections generally operates at an acceptable LOS (i.e., LOS D or better).

*Table 5.11-3
Existing Caltrans Ramp Intersection LOS Summary (HCM Methodology)
Interchanges Adjacent to Proposed Project Site*

<i>Intersection</i>	<i>AM Peak Hour</i>		<i>PM Peak Hour</i>	
	<i>Avg. Delay (Seconds)</i>	<i>LOS</i>	<i>Avg. Delay (Seconds)</i>	<i>LOS</i>
Sand Canyon & I-5 NB Ramps	21.8	C	41.5	D
Sand Canyon & Marine Way	5.9	A	8.8	A
Sand Canyon & I-5 SB Ramps	31.1	C	20.7	C
SR-133 SB Ramps & Irvine Boulevard	13.7	B	11.8	B
SR-133 NB Ramps & Irvine Boulevard	10.6	B	11.4	B

Figure 5.11-6 illustrates the interchange locations where freeway ramps were analyzed, and Table 5.11-4 summarizes existing peak hour V/C ratios for freeway ramps in the study area. Freeway ramps are part of the CMP highway network and the threshold in the CMP is LOS E. As shown in Table 5.11-4, the freeway ramps

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generally operate at acceptable service levels during the peak hours under existing traffic conditions, with the exception of the following ramp junctions:

- I-405 Northbound Direct On-Ramp at Jeffrey Rd
- SR-133 Southbound Loop On-Ramp at Barranca Pkwy

*Table 5.11-4
Existing Freeway/Tollway Ramp LOS Summary*

<i>Interchange</i>	<i>Ramp¹</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
				<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>	<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>
I-5 at Jamboree	SB Direct On	1	1,500	300	0.20	A	988	0.66	B
	SB Loop On	1	1,080	535	0.50	A	397	0.37	A
	NB Direct On	1	1,080	607	0.56	A	547	0.51	A
	NB Loop On	1	1,080	584	0.54	A	745	0.69	B
	SB Off	1	1,500	1,500	1.00	E	1,446	0.96	E
	NB Off	1	1,500	1,303	0.87	D	1,029	0.69	B
I-5 at Culver	SB Direct On	1	900	279	0.31	A	341	0.38	A
	SB Loop On	1	900	426	0.47	A	252	0.28	A
	NB Direct On	1	900	550	0.61	B	218	0.24	A
	NB Loop On	1	1,500	870	0.58	A	574	0.38	A
	SB Off	2	3,000	880	0.29	A	1,707	0.57	A
	NB Off	1	1,500	380	0.25	A	735	0.49	A
I-5 at Jeffrey	SB On	1	1,080	709	0.66	B	610	0.56	A
	NB Direct On	1	1,080	282	0.26	A	176	0.16	A
	NB Loop On	1	1,500	232	0.15	A	395	0.26	A
	SB Off	1	1,500	470	0.31	A	785	0.52	A
	NB Off	2	2,250	617	0.27	A	1,499	0.67	B
I-5 at Sand Canyon	SB On	1	1,500	493	0.33	A	492	0.33	A
	NB On	1	1,500	393	0.26	A	875	0.58	A
	SB Off	1	1,500	1,030	0.69	B	559	0.37	A
	NB Off	2	2,250	525	0.23	A	721	0.32	A
I-5 at Barranca	NB On	1	1,500	25	0.02	A	110	0.07	A
	SB Off	1	1,500	94	0.06	A	126	0.08	A
I-5 at Alton	SB On	1	1,500	78	0.05	A	555	0.37	A
	NB Direct On	2	1,800	166	0.09	A	830	0.46	A
	NB Loop On	1	1,500	54	0.04	A	481	0.32	A
	SB Off	2	2,250	1,462	0.65	B	573	0.25	A
	NB Off	2	2,250	992	0.44	A	279	0.12	A

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*Table 5.11-4
Existing Freeway/Tollway Ramp LOS Summary*

<i>Interchange</i>	<i>Ramp¹</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
				<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>	<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>
I-5 at Bake	SB Direct On	1	1,500	502	0.33	A	439	0.29	A
	SB Loop On	1	1,080	174	0.16	A	514	0.48	A
	NB Direct On	2	3,400	1,743	0.51	A	2,489	0.73	C
	NB Loop On	1	1,500	218	0.15	A	1,101	0.73	C
	SB Off	2	3,000	2,675	0.89	D	2,342	0.78	C
	NB Off	2	3,000	932	0.31	A	221	0.07	A
I-5 at Lake Forest	SB Direct On	1	1,500	231	0.15	A	556	0.37	A
	SB Loop On	1	1,080	291	0.27	A	322	0.30	A
	NB On	2	1,800	783	0.44	A	925	0.51	A
	SB Off	2	3,000	1,574	0.52	A	2,672	0.89	D
	NB Off	1	1,500	1,017	0.68	B	713	0.48	A
I-5 at El Toro	SB Direct On	1	1,080	278	0.26	A	714	0.66	B
	SB Loop On	1	1,500	594	0.40	A	810	0.54	A
	NB Direct On	1	1,500	960	0.64	B	601	0.40	A
	NB Loop On	1	1,500	670	0.45	A	843	0.56	A
	SB Off	2	2,250	1,473	0.65	B	1,301	0.58	A
	NB Off	1	1,500	964	0.64	B	1,271	0.85	D
I-5 at Alicia	SB Direct On	1	1,080	233	0.22	A	237	0.22	A
	SB Loop On	1	1,500	641	0.43	A	852	0.57	A
	NB Direct On	1	1,500	1,322	0.88	D	1,070	0.71	C
	NB Loop On	1	1,500	1,294	0.86	D	566	0.38	A
	SB Off	2	3,000	1,625	0.54	A	2,072	0.69	B
	NB Off	1	1,500	432	0.29	A	1,017	0.68	B
I-405 at Culver	SB Direct On	1	1,500	329	0.22	A	634	0.42	A
	SB Loop On	1	900	438	0.49	A	329	0.37	A
	NB Direct On	1	1,500	1,119	0.75	C	521	0.35	A
	NB Loop On	1	1,500	705	0.47	A	381	0.25	A
	SB Off	2	3,000	961	0.32	A	1,662	0.55	A
	NB Off	1	1,500	512	0.34	A	743	0.50	A

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*Table 5.11-4
Existing Freeway/Tollway Ramp LOS Summary*

<i>Interchange</i>	<i>Ramp¹</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
				<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>	<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>
I-405 at Jeffrey	SB Direct On	1	1,500	889	0.59	A	1,127	0.75	C
	SB Loop On	1	900	573	0.64	B	512	0.57	A
	NB Direct On	1	1,500	1,615	1.08	F	627	0.42	A
	NB Loop On	1	900	150	0.17	A	101	0.11	A
	SB Off	1	1,500	393	0.26	A	424	0.28	A
	NB Off	2	2,250	1,309	0.58	A	1,665	0.74	C
I-405 at Sand Canyon	SB On	1	1,500	351	0.23	A	512	0.34	A
	NB Direct On	2	1,800	757	0.42	A	819	0.46	A
	NB Loop On	1	1,500	672	0.45	A	320	0.21	A
	SB Off	1	1,500	1,162	0.77	C	624	0.42	A
	NB Off	1	1,500	338	0.23	A	467	0.31	A
I-405 at Irvine Center	SB Direct On	1	900	20	0.02	A	68	0.08	A
	SB Loop On	1	900	81	0.09	A	353	0.39	A
	NB Direct On	1	1,500	101	0.07	A	551	0.37	A
	NB Loop On	1	1,500	327	0.22	A	1,011	0.67	B
	SB Off	2	2,250	1,776	0.79	C	1,306	0.58	A
	NB Off	2	3,000	626	0.21	A	300	0.10	A
SR-133 at Irvine	SB On	1	1,500	171	0.11	A	84	0.06	A
	NB Direct On	1	1,500	30	0.02	A	141	0.09	A
	NB Loop On	1	1,500	94	0.06	A	195	0.13	A
	SB Off	2	2,250	519	0.23	A	119	0.05	A
	NB Off	1	1,500	84	0.06	A	134	0.09	A
SR-133 at Barranca	SB Loop On	1	1,080	146	0.14	A	1,121	1.04	F
	NB Direct On	1	1,080	65	0.06	A	417	0.39	A
	SB Off	2	3,000	1,626	0.54	A	531	0.18	A
SR-241 at Chapman / Santiago Cyn	SB On	2	1,800	438	0.24	A	224	0.12	A
	NB On	1	1,500	186	0.12	A	201	0.13	A
	SB Off	1	1,500	459	0.31	A	204	0.14	A
	NB Off	1	1,500	305	0.20	A	573	0.38	A
SR-241 at Portola (West)	SB On	1	1,500	136	0.09	A	256	0.17	A
	NB On	1	1,500	11	0.01	A	10	0.01	A
	SB Off	1	1,500	10	0.01	A	6	0.00	A
	NB Off	1	1,500	416	0.28	A	152	0.10	A

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*Table 5.11-4
Existing Freeway/Tollway Ramp LOS Summary*

<i>Interchange</i>	<i>Ramp¹</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
				<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>	<i>Volume</i>	<i>V/C²</i>	<i>LOS</i>
SR-241 at Alton	SB On	1	1,500	36	0.02	A	147	0.10	A
	NB On	1	1,500	400	0.27	A	243	0.16	A
	SB Off	1	1,500	157	0.10	A	346	0.23	A
	NB Off	2	2,250	104	0.05	A	79	0.04	A
SR-241 at Lake Forest	NB On	2	2,250	196	0.09	A	400	0.18	A
	SB Off	1	1,500	388	0.26	A	258	0.17	A
SR-241 at Portola (East)	SB On	1	1,500	224	0.15	A	662	0.44	A
	NB On	2	2,250	691	0.31	A	261	0.12	A
	SB Off	1	1,500	222	0.15	A	654	0.44	A
	NB Off	2	2,250	823	0.37	A	291	0.13	A
SR-261 at Chapman	SB On	1	1,500	462	0.31	A	97	0.06	A
	NB Off	1	1,500	17	0.01	A	402	0.27	A
SR-261 at Portola	SB On	1	1,500	177	0.12	A	33	0.02	A
	NB On	1	1,500	119	0.08	A	59	0.04	A
	SB Off	1	1,500	80	0.05	A	89	0.06	A
	NB Off	1	1,500	28	0.02	A	164	0.11	A
SR-261 at Irvine	SB On	1	1,500	457	0.30	A	82	0.05	A
	NB On	1	1,500	79	0.05	A	93	0.06	A
	SB Off	1	1,500	176	0.12	A	80	0.05	A
	NB Off	1	1,500	41	0.03	A	586	0.39	A

¹ NB = Northbound; SB = Southbound.

² V/C = Volume/Capacity Ratio.

BOLD = Unsatisfactory level of service.

5.11.1.9 Existing Freeway Mainline Levels of Service

To determine existing peak hour operating conditions for mainline freeway segments, peak hour traffic count data was compiled for the freeway system in the traffic analysis study area. As mentioned previously, existing freeway mainline count data is consistent with the City of Irvine Planning Area 40 Vesting Tentative Tract Map 17277 Traffic Study, prepared by Austin-Foust Associates, Inc. (October, 2010), which was taken from the Caltrans PeMS. Data was extracted for a typical five-day workweek (April 19-23, 2010) and counts were then averaged.

The AM and PM peak hour freeway mainline volumes were applied together with the capacities described above for mixed-flow (general purpose) lanes and high-occupancy vehicle ("HOV") lanes to calculate existing peak hour V/C ratios, by direction, for freeway mainline segments in the study area. When evaluating existing freeway conditions (i.e., based on traffic count data), the V/C and LOS criteria are applicable only in situations where the observed traffic volume occurs in stable flow. When the peak hour V/C ratio on a

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freeway mainline segment nears 1.0, unstable conditions can occur which may result in a breakdown in traffic flow. This breakdown in flow causes a reduction in capacity (vehicle speeds drop below the speed at which maximum capacity is available), and hence the V/C increases, causing a further reduction in speed. At the same time, the reduction in capacity and increase in V/C causes queue build-up and the stop-and-go conditions can extend for a considerable distance upstream of the problem freeway segment. Furthermore, this occurrence, and its severity (i.e., length of queue), can vary from day to day even when day-to-day fluctuations in traffic volumes are relatively small.

Table 5.11-5 summarizes existing AM and PM peak hour V/C ratios for freeway mainline segments in the study area. The freeway mainline segments operate at acceptable service levels (LOS “E” or better) during the peak hours under existing traffic conditions, with the exception of the following location:

- I-5 Southbound South of Alicia Pkwy

The LOS results based on V/C indicate measures of demand and are used as a basis for future mainline segment analysis in the Traffic Study. Note that future traffic volumes presented in the Traffic Study represent “demand” and no attempt is made to estimate operating conditions such as discussed here (i.e., only the V/C LOS based on the future demand traffic volume is reported).

*Table 5.11-5
Existing Freeway/Tollway Mainline LOS Summary*

Freeway/ Toll	Location	Direction ¹	Lanes ²	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
					Volume	V/C ³	LOS	Volume	V/C ³	LOS
I-5	n/o Tustin Ranch	NB	5+1H	11,600	8,590	0.74	D	7,710	0.66	C
		SB	5+1H	11,600	7,410	0.64	C	9,560	0.82	D
	n/o Jamboree	NB	5+1H	11,600	9,780	0.84	D	7,670	0.66	C
		SB	5+1H	11,600	8,570	0.74	D	11,040	0.95	E
	n/o Culver	NB	5+1H	11,600	11,040	0.95	E	8,150	0.70	C
		SB	5+1H	11,600	8,370	0.72	D	10,080	0.87	D
	n/o Jeffrey	NB	5+1H	11,600	9,510	0.82	D	7,380	0.64	C
		SB	5+1H	11,600	7,220	0.62	C	8,960	0.77	D
	n/o Sand Cyn	NB	5+1H	11,600	7,940	0.68	C	8,420	0.73	D
		SB	5+1H	11,600	7,080	0.61	C	7,570	0.65	C
	n/o Alton	NB	4+1H	9,600	6,620	0.69	C	7,130	0.74	D
		SB	4+1H	9,600	7,410	0.77	D	7,320	0.76	D
	n/o Bake	NB	9+2H	21,500	7,940	0.37	B	8,420	0.39	B
		SB	9+2H	21,500	9,790	0.46	B	8,970	0.42	B
	n/o Lake Forest	NB	8+2H	19,500	7,920	0.41	B	7,470	0.38	B
		SB	8+2H	19,500	9,060	0.46	B	8,940	0.46	B
	n/o El Toro	NB	5+2H	13,500	8,770	0.65	C	7,610	0.56	C
		SB	5+2H	13,500	8,610	0.64	C	8,540	0.63	C
	n/o Alicia	NB	5+1H	11,600	8,700	0.75	D	7,200	0.62	C

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*Table 5.11-5
Existing Freeway/Tollway Mainline LOS Summary*

Freeway/ Toll	Location	Direction ¹	Lanes ²	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
					Volume	V/C ³	LOS	Volume	V/C ³	LOS
I-405	s/o Alicia	SB	4+1H	9,600	7,530	0.78	D	9,640	1.00	E
		NB	4+1H	9,600	9,420	0.98	E	7,260	0.76	D
		SB	4+1H	9,600	8,090	0.84	D	10,100	1.05	F
	n/o Jeffrey	NB	4+1H	9,600	8,620	0.90	E	6,760	0.70	C
		SB	4+1H	9,600	7,980	0.83	D	7,390	0.77	D
	n/o Sand Cyn	NB	4+1H	9,600	7,970	0.83	D	7,120	0.74	D
		SB	4+1H	9,600	8,510	0.89	D	8,140	0.85	D
	n/o SR-133	NB	4+1H	9,600	9,220	0.96	E	7,750	0.81	D
		SB	4+1H	9,600	7,450	0.78	D	7,330	0.76	D
	n/o Irvine Center	NB	4+1H	9,600	6,110	0.64	C	6,400	0.67	C
		SB	4+1H	9,600	6,540	0.68	C	3,440	0.36	B
	n/o I-5	NB	4+1H	9,600	3,850	0.40	B	3,050	0.32	B
		SB	4+1H	9,600	5,460	0.57	C	6,320	0.66	C
SR-133	n/o Irvine Blvd	NB	4	8,000	1,130	0.14	A	3,320	0.42	B
		SB	4	8,000	4,330	0.54	C	1,270	0.16	A
	n/o I-5	NB	3	6,000	1,020	0.17	A	2,790	0.47	B
		SB	3	6,000	2,860	0.48	B	790	0.13	A
	s/o I-5	NB	3	6,000	530	0.09	A	1,420	0.24	A
		SB	3	6,000	1,600	0.27	A	570	0.10	A
	n/o I-405	NB	3	6,000	1,370	0.23	A	1,710	0.29	A
		SB	3	6,000	2,740	0.46	B	1,500	0.25	A
SR-241	n/o Santiago Canyon	NB	3	6,000	1,430	0.24	A	2,350	0.39	B
		SB	3	6,000	3,940	0.66	C	1,310	0.22	A
	n/o SR-133	NB	3	6,000	1,270	0.21	A	1,840	0.31	B
		SB	3	6,000	2,240	0.37	B	1,120	0.19	A
	n/o Portola	NB	4	8,000	3,270	0.41	B	1,160	0.15	A
		SB	4	8,000	1,200	0.15	A	2,620	0.33	B
	n/o Alton	NB	3	6,000	3,440	0.57	C	1,520	0.25	A
		SB	3	6,000	1,180	0.20	A	1,980	0.33	B
	n/o Lake Forest	NB	3	6,000	2,420	0.40	B	1,090	0.18	A
		SB	3	6,000	650	0.11	A	2,015	0.34	B
SR-261	n/o Portola	NB	2	4,000	350	0.09	A	1,260	0.32	B
		SB	2	4,000	2,260	0.57	C	380	0.10	A
	n/o Irvine Blvd	NB	3	6,000	190	0.03	A	1,250	0.21	A
		SB	3	6,000	2,190	0.37	B	270	0.05	A

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*Table 5.11-5
Existing Freeway/Tollway Mainline LOS Summary*

Freeway/ Toll	Location	Direction ¹	Lanes ²	Peak Hour Capacity	AM Peak Hour			PM Peak Hour		
					Volume	V/C ³	LOS	Volume	V/C ³	LOS
	s/o Irvine Blvd	NB	2	4,000	230	0.06	A	1,730	0.43	B
		SB	2	4,000	2,570	0.64	C	360	0.09	A

¹ NB = Northbound; SB = Southbound.

² H = High-Occupancy Vehicle Lane.

³ V/C = Volume/Capacity Ratio.

BOLD = Unsatisfactory level of service.

5.11.1.10 Planned Circulation System

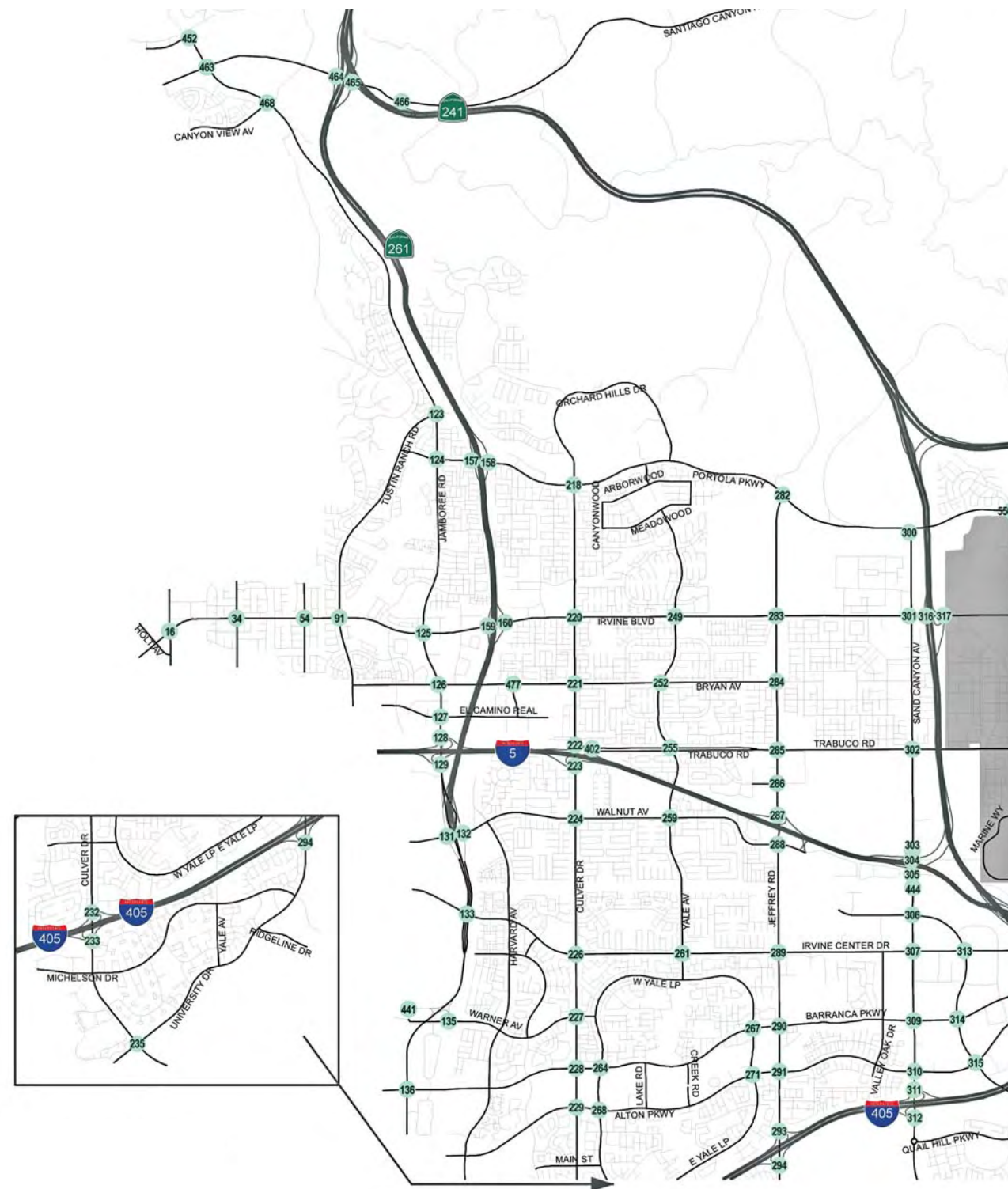
The circulation system that is planned in the traffic analysis study area under year 2015 conditions is illustrated on Figure 5.11-7. On-site roadways within Districts 1 North, 1 South, 4, 7 and 8 are planned to be constructed for the Modified Project.

Midblock travel lanes on individual segments of the year 2030 roadway network are shown in Figure 5.11-8. The year 2015 and year 2030 circulation systems only assume improvements that are committed for construction (i.e., public agency capital improvement programs, state transportation improvement program, etc.) or would be constructed as part of previously entitled development by 2015 or 2030.

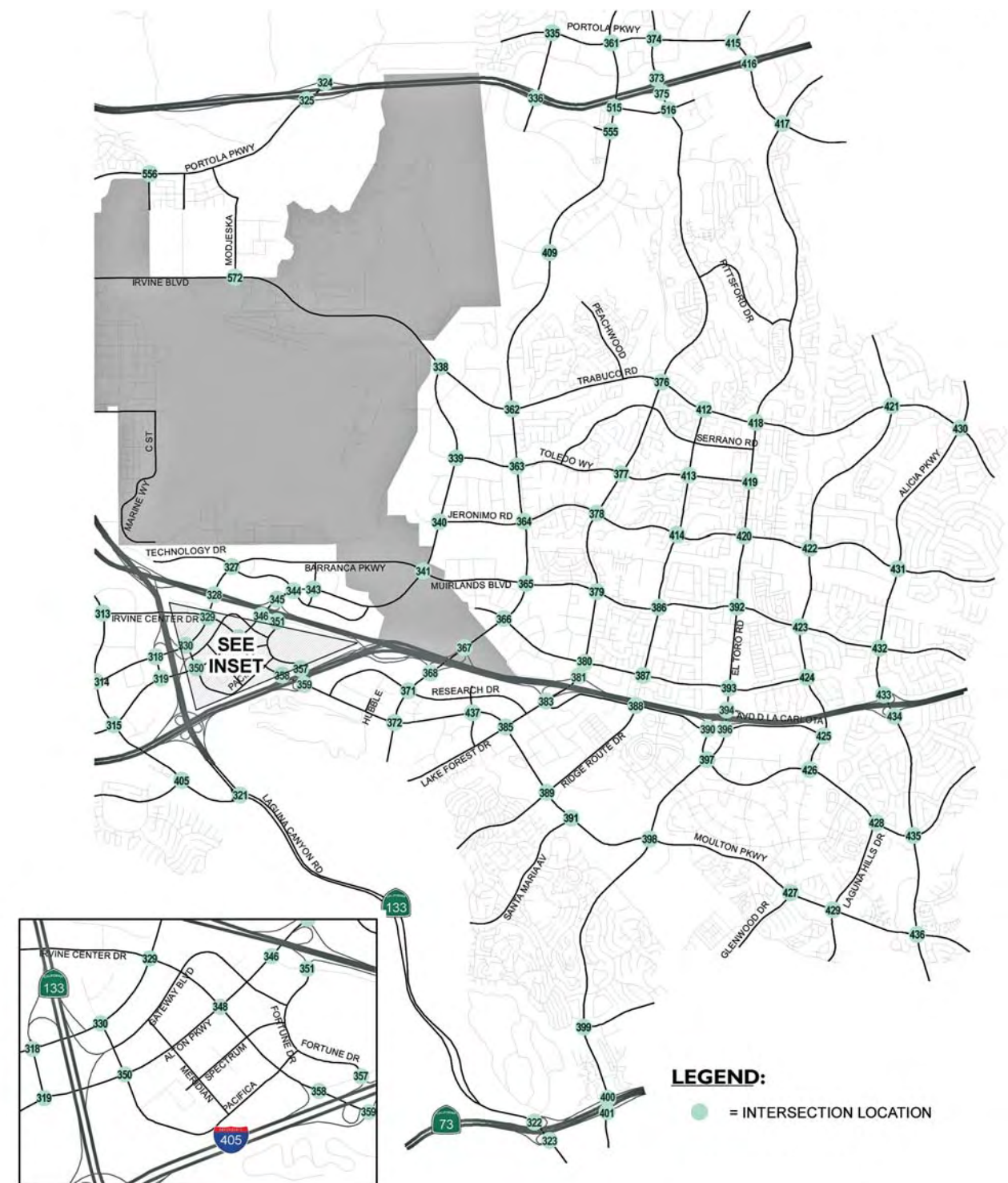
The Post-2030 highway network is depicted in Figure 5.11-9. The Post-2030 scenario assumes full buildout of the General Plan Circulation Elements for the City of Irvine and its neighboring cities as well as the Orange County Master Plan of Arterial Highways (“MPAH”). This includes a number of unfunded, and therefore non-committed, planned circulation system improvements.

Table 4-5 in the Traffic Study (Appendix M) presents the committed roadway improvements for years 2010-2015. Table 4-6 in the Traffic Study lists the improvements that are committed to be in place by 2030, and Table 4-7 in the Traffic Study lists the improvements assumed for Post-2030. Tables 4-8 through 4-10 in the Traffic Study present the intersection committed projects for years 2015, 2030 and Post-2030 which represent the background circulation assumptions for each year.

Existing Intersection Location Map



West Study Area



East Study Area

LEGEND:
● = INTERSECTION LOCATION

0 6,000
Scale (Feet)



5. Environmental Analysis

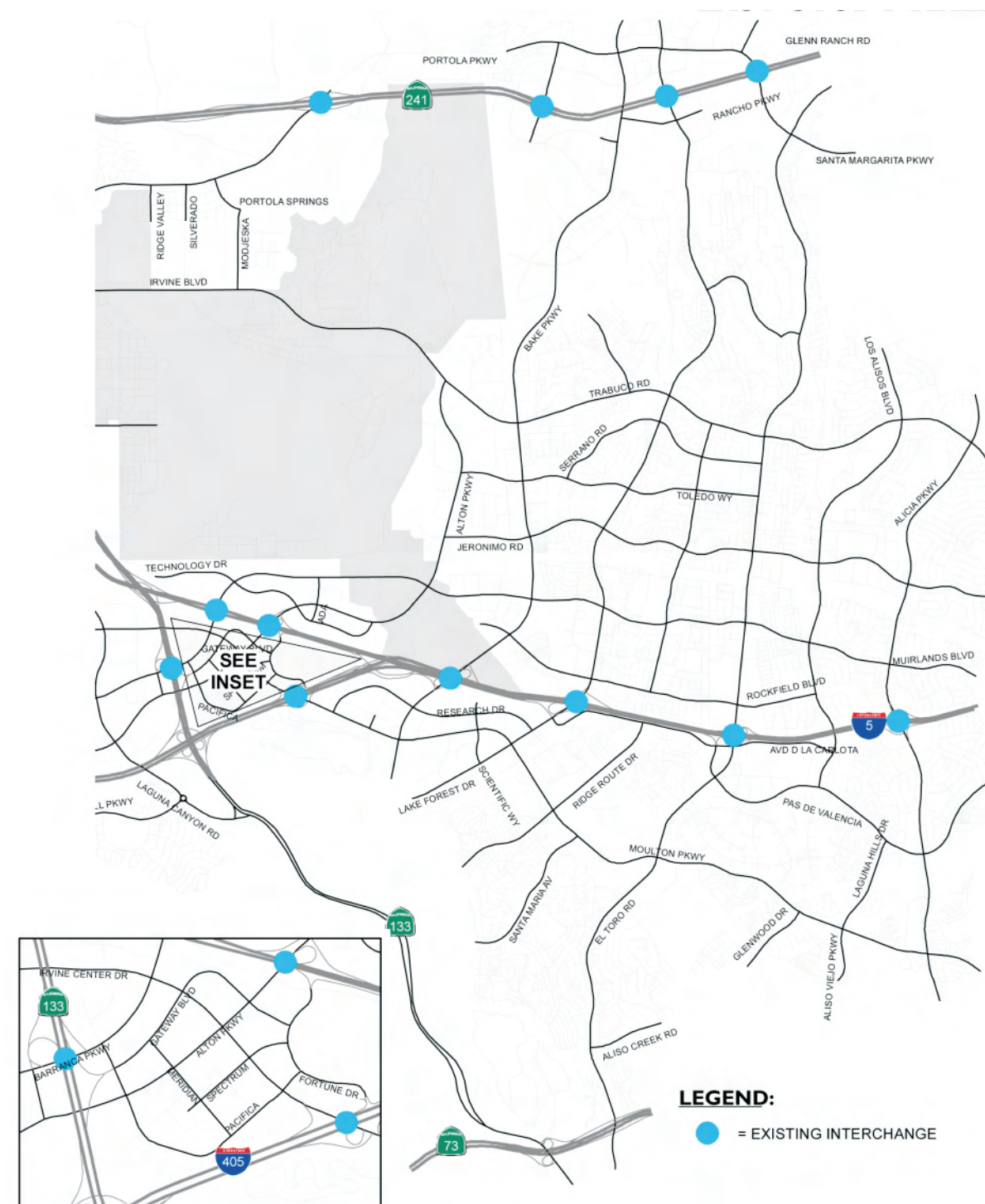
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Existing Freeway Interchange Locations



West Study Area



East Study Area

LEGEND:

● = EXISTING INTERCHANGE

0 6,000
Scale (Feet)



5. Environmental Analysis

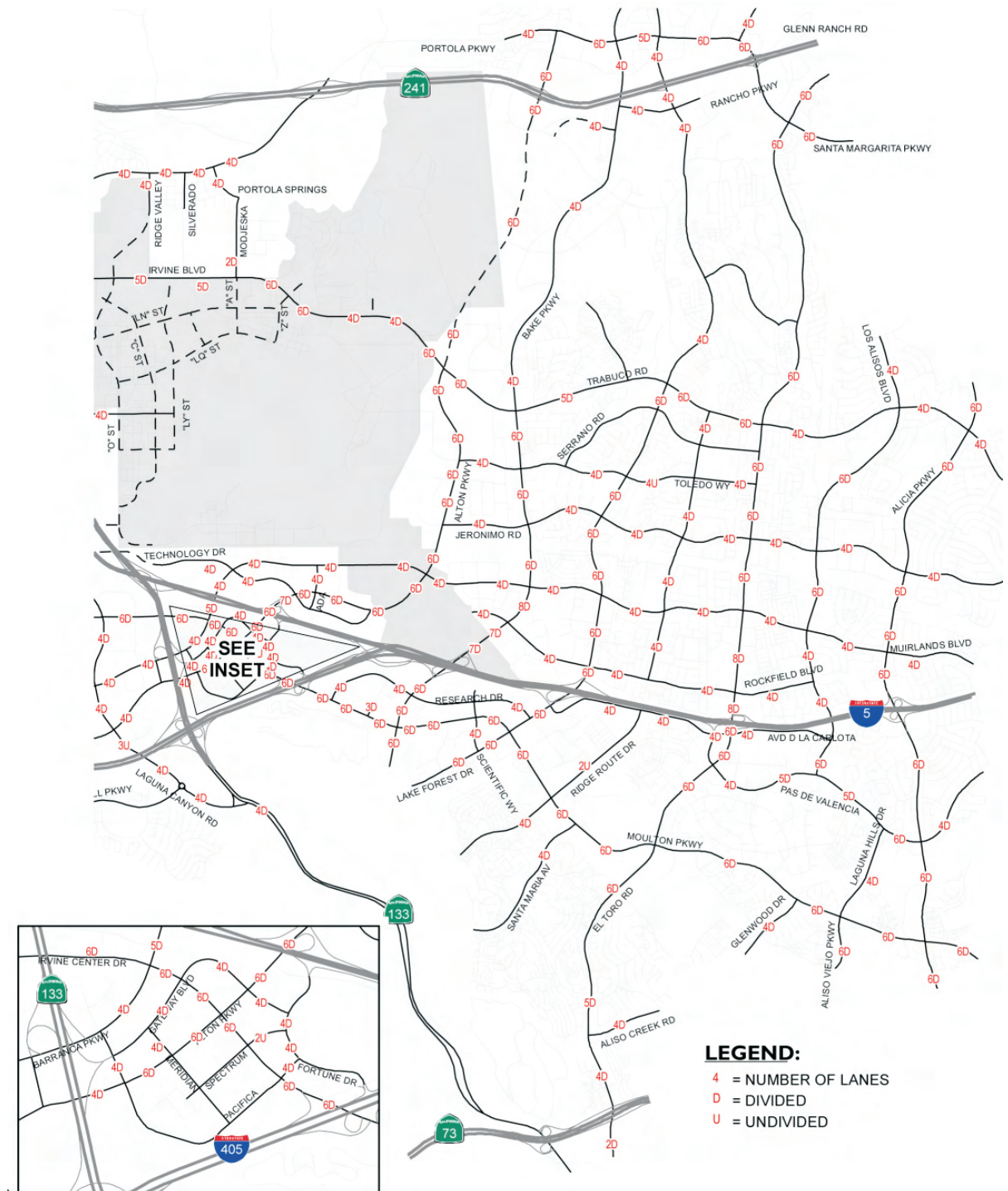
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2015 Circulation System



West Study Area



East Study Area

LEGEND:
 4 = NUMBER OF LANES
 D = DIVIDED
 U = UNDIVIDED

0 6,000
 Scale (Feet)



5. Environmental Analysis

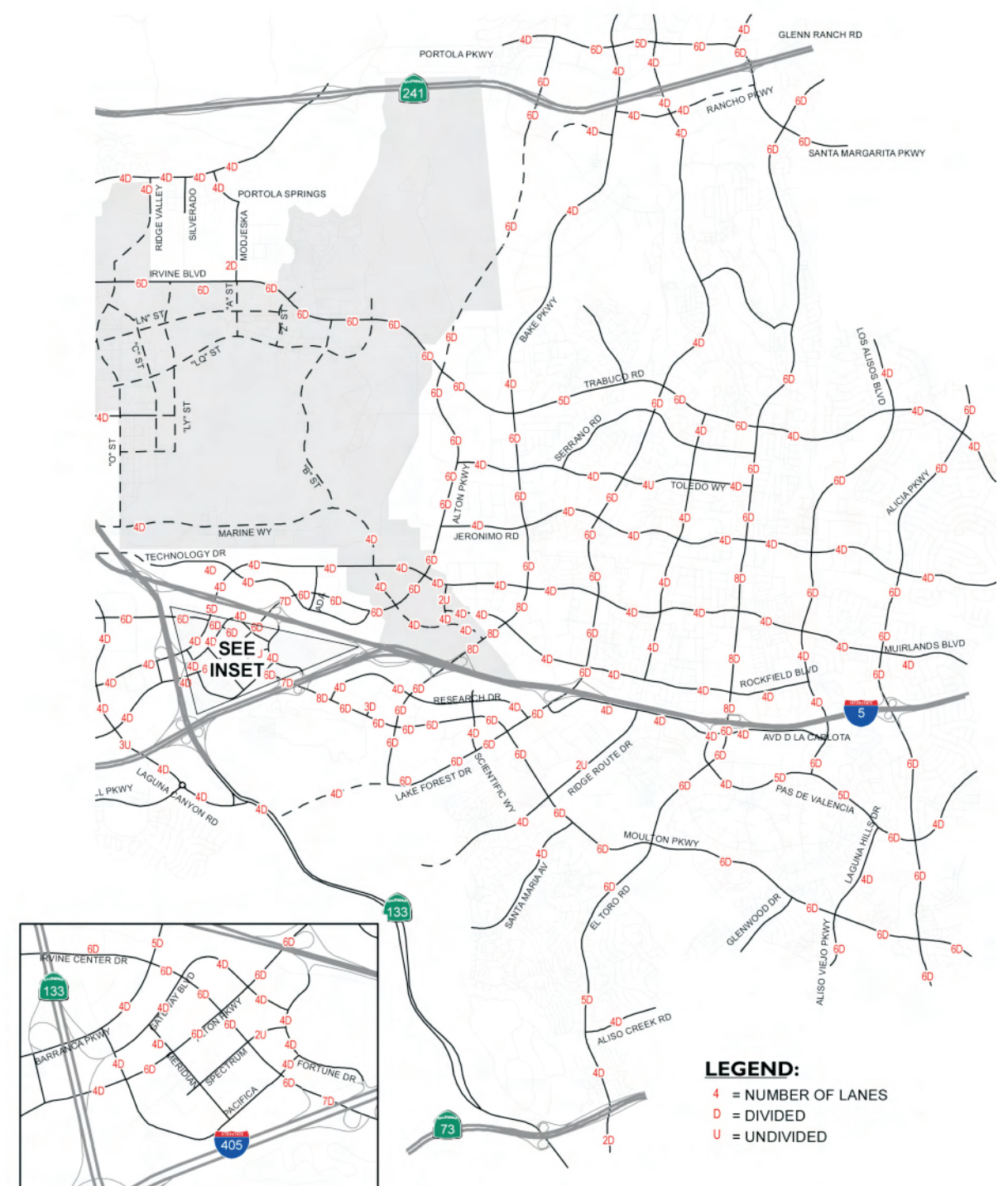
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2030 Circulation System



West Study Area



East Study Area

LEGEND:
 4 = NUMBER OF LANES
 D = DIVIDED
 U = UNDIVIDED

0 6,000
 Scale (Feet)



5. Environmental Analysis

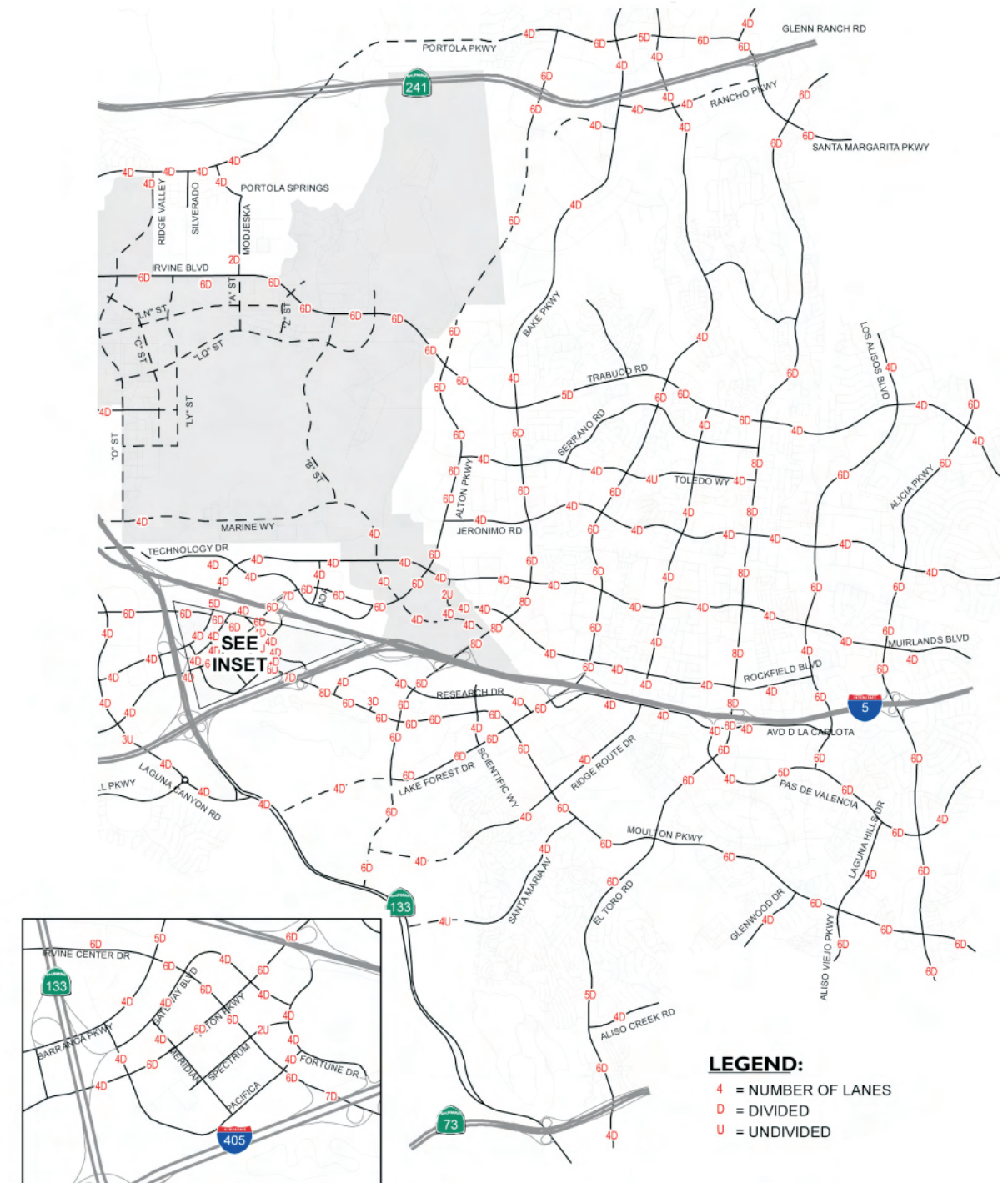
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General Plan Buildout (Post-2030) Circulation System



West Study Area



East Study Area

LEGEND:
 4 = NUMBER OF LANES
 D = DIVIDED
 U = UNDIVIDED

0 6,000
 Scale (Feet)



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5.11.1.11 Project Design Features

The following project design features (“PDFs”) have been incorporated into the Modified Project to help to reduce or avoid its potential traffic impacts.

PDF 11-1 The Modified Project will provide an eastbound right turn overlap phasing at the intersection of Alton Parkway and Irvine Boulevard as a project design feature associated with on-site development activity in District 5.

5.11.2 Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the City has determined that a project would normally have a significant effect on the environment if the project would:

- T-1 Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- T-2 Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- T-3 Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- T-4 Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- T-5 Result in inadequate emergency access.
- T-6 Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Chapter 8, *Impacts Found Not to Be Significant*, substantiates that the following potential impacts would be less than significant:

- Impact T-3
- Impact T-4
- Impact T-5

Accordingly, these impacts will not be addressed in the following analysis.

5.11.3 The Certified EIR

The Certified EIR concluded that the that the originally approved 3,625 dwelling units and approximately 6.5 million square feet of non-residential development would cause an increase in traffic which would be substantial in relation to the existing traffic load and capacity of the street system—that is, a substantial

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increase in either the number of vehicle trips, the V/C on roadways, or congestion at intersections—in the year 2007, year 2025, and post-2025 scenarios (2003 OCGP EIR, p. 5.2-66):

Year 2007

- I-5 Freeway at Alton Parkway—southbound off-ramp (A.M.)
- I-405 Freeway at Irvine Center Drive—southbound off-ramp (A.M.)

Year 2025

- University Drive from the I-405 Freeway to Michelson Drive (A.M.)
- I-5 Freeway from Sand Canyon Avenue to Jeffrey Road—northbound (P.M.)
- I-5 Freeway from Jeffrey Road to Sand Canyon Avenue—southbound (A.M.)
- I-405 Freeway from Jeffrey Road to Sand Canyon Avenue—southbound (A.M.)
- I-5 Freeway at Jeffrey Road—southbound on-ramp (A.M.)
- I-5 Freeway at Sand Canyon Avenue—northbound on-ramp (P.M.)
- I-5 Freeway at Sand Canyon Avenue—southbound off-ramp (A.M.)
- I-5 Freeway at Alton Parkway—southbound off-ramp (A.M.)
- I-5 Freeway at Bake Parkway—southbound off-ramp (A.M.)
- I-405 Freeway at Sand Canyon Avenue—northbound direct on-ramp (P.M.)
- I-405 Freeway at Sand Canyon Avenue—southbound off-ramp (A.M.)
- I-405 Freeway at Irvine Center Drive—southbound off-ramp (A.M.)
- SR-241 Tollway at Lake Forest Drive—southbound off-ramp (A.M.)
- SR-133 Freeway at Barranca Parkway—northbound direct on-ramp (P.M.)

Post-2025

- I-5 Freeway from Sand Canyon Avenue to Jeffrey Road—northbound (P.M.)
- I-5 Freeway from Jeffrey Road to Sand Canyon Avenue—southbound (A.M.)
- I-405 Freeway from Jeffrey Road to Sand Canyon Avenue—southbound (A.M.)
- I-5 Freeway at Jeffrey Road—southbound on-ramp (A.M.)
- I-5 Freeway at Jeffrey Road—northbound off-ramp (P.M.)
- I-5 Freeway at Sand Canyon Avenue—northbound on-ramp (P.M.)
- I-5 Freeway at Sand Canyon Avenue—southbound off-ramp (A.M.)
- I-5 Freeway at Alton Parkway—southbound off-ramp (A.M.)
- I-5 Freeway at Bake Parkway—southbound off-ramp (A.M.)
- I-5 Freeway at El Toro Road—southbound off-ramp (P.M.)
- I-405 Freeway at Sand Canyon Avenue—northbound direct on-ramp (A.M./P.M.)
- I-405 Freeway at Sand Canyon Avenue—southbound off-ramp (A.M.)
- I-405 Freeway at Irvine Center Drive—southbound off-ramp (A.M.)

Intersections

For the list of impacted intersections by analysis year, please refer to the following 2003 OCGP EIR tables:

- Table 5.2-12 for year 2007
- Table 5.2-13 for year 2025
- Table 5.2-15 for post-2025

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5.11.4 Environmental Impacts of the Modified Project

The following impact analysis addresses impacts that the Initial Study disclosed as potentially significant impacts of the Modified Project. The applicable impacts are identified in brackets after the impact statement.

IMPACT 5.11-1: TRIP GENERATION ASSOCIATED WITH THE MODIFIED PROJECT WOULD NOT IMPACT LEVELS OF SERVICE FOR THE EXISTING AREA ROADWAY SYSTEM, AS COMPARED TO THE APPROVED PROJECT. [IMPACTS T-1 AND T-2]

Impact Analysis:

5.11.4.1 Proposed Trip Generation

The land use and trip generation for the 2015 Without Project, 2030 Without Project, and the Modified Project are based upon the specific land uses approved and/or proposed for the Modified Project. Trip generation rates based primarily upon data collected by the Institute of Transportation Engineers (“ITE”) Trip Generation Manual, 8th Edition, 2008 are shown in Table 5.11-6. These are used to evaluate on-site peak hour intersection performance.

Table 5.11-6
Land Use Based Trip Generation Rates

Land Use	ITE Code ¹	Units ²	Peak Hour Trip Rates						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Single Family Detached Residential	210	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.57
Multi-Family (Apartments)	220	DU	0.10	0.41	0.51	0.40	0.22	0.62	6.65
Multi-Family (Condos)	230	DU	0.07	0.37	0.44	0.35	0.17	0.52	5.81
Senior Adult Housing - Detached	251	DU	0.08	0.14	0.22	0.16	0.11	0.27	3.71
Neighborhood Park	-- ³	AC	0.23	0.23	0.47	0.16	0.16	0.32	3.59
K-8 School (Elementary & Middle) ⁴	520	STU	0.50	0.41	0.91	0.07	0.08	0.15	1.29
Golf Course	430	AC	0.16	0.05	0.21	0.10	0.20	0.30	5.04
Institutional (Education)	550	STU	0.17	0.04	0.21	0.06	0.15	0.21	2.38
Church, Synagogue	560	TSF	0.35	0.21	0.56	0.26	0.29	0.55	9.11
Cemetery	566	AC	0.12	0.05	0.17	0.28	0.56	0.84	4.73
Mortuary	-- ⁵	TSF	0.21	0.09	0.30	0.48	0.97	1.45	8.14
Child Care	565	TSF	6.50	5.76	12.26	5.86	6.60	12.46	79.26
Medical Office	720	TSF	1.82	0.48	2.30	0.93	2.53	3.46	36.13
Medical and Science (R&D)	760	TSF	1.01	0.21	1.22	0.16	0.91	1.07	8.11
Auto Sales, Parking & Storage	841	TSF	1.50	0.53	2.03	1.01	1.58	2.59	33.34
Office (75,000 TSF)	710	TSF	1.75	0.24	1.99	0.37	1.80	2.17	14.25
Retail (75,000 TSF)	820	TSF	1.06	0.67	1.73	3.43	3.57	7.00	75.11

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*Table 5.11-6
Land Use Based Trip Generation Rates*

Land Use	ITE Code ¹	Units ²	Peak Hour Trip Rates						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Retail (29.200 TSF)	820	TSF	1.56	0.99	2.55	4.68	4.87	9.55	104.48
Retail (20.400 TSF)	820	TSF	1.80	1.15	2.95	5.27	5.48	10.75	118.46
Retail (80.000 TSF)	820	TSF	1.03	0.66	1.69	3.36	3.49	6.85	73.43
Retail (45.000 TSF)	820	TSF	1.30	0.83	2.13	4.06	4.22	8.28	89.81
Retail (30.000 TSF)	820	TSF	1.54	0.98	2.52	4.64	4.83	9.47	103.50
Exposition	-- ⁶	TSF	0.29	0.19	0.48	1.13	1.18	2.31	23.77
Agriculture	-- ⁷	TSF	0.10	0.10	0.20	0.10	0.10	0.20	2.01
OS, Habitat, Wildlife Corridor & Drainage	-- ⁸	TSF	0.01	0.01	0.02	0.01	0.01	0.02	0.17
University Housing	-- ⁹	TSF	0.11	0.41	0.55	0.43	0.23	0.66	7.15
Transitional Housing	-- ¹⁰	TSF	0.10	0.41	0.51	0.40	0.21	0.61	6.56
TOD Residential	-- ¹¹	TSF	0.11	0.41	0.55	0.43	0.23	0.66	7.14

¹ Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 8th Edition, 2008. Land use based trip rates are used to generate intersection volumes at project access locations for evaluation of on-site geometrics where ITAM data is not utilized.

² DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres; STU = Students

³ Daily trip rate per ITAM (Code 139). AM/PM in and out splits per SANDAG.

⁴ For Institutional (education) land uses, the daily trip rate can also be calculated at 12.78 ADT/TSF and an equivalent socioeconomic based daily trip rate of 14.12 ADT/TSF.

⁵ Daily trip rate per ITAM (Code 268). AM/PM in and out splits per ITE.

⁶ Daily trip rate per ITAM (Code 276). AM/PM in and out splits per ITE.

⁷ Daily trip rate per ITAM (Code 263). Nominal AM/PM peak activity.

⁸ Daily trip rate per ITAM (Code 137). Nominal AM/PM peak activity.

⁹ Daily trip rate per ITAM (Code 255). AM/PM in and out splits per ITE (Code 220).

¹⁰ Daily trip rate per ITAM (Code 257). AM/PM in and out splits per ITE (Code 220).

¹¹ Daily trip rate per ITAM (Code 270). AM/PM in and out splits per ITE (Code 220).

A comparison of daily trip calculations for project land uses based upon NITM, ITAM and ITE rates are included in Appendix 2.1 to the Traffic Study (Appendix M). The ITAM rates are derived from socioeconomic trip generation procedures in ITAM 8.4-10. Land use trip generation rates for the NITM area are utilized in traffic share allocations for NITM Future Development Area. The NITM trip rates were developed from various sources including the ITE Trip Generation Manual, the San Diego Traffic Generators Manual published by the San Diego Association of Governments, and actual trip generation surveys. It should be noted that the NITM trip rates are different from ITAM trip rates applied for other purposes to land uses on the Proposed Project Site, such as evaluating trip caps in the project area.

The land use and trip generation for the Modified Project are summarized in Tables 3-4 and 3-7 and in the Traffic Study (Appendix M). The Modified Project would locate 4,894 dwelling units on five Vesting Tentative Tract Maps, including 3,625 dwelling units that were previously generally located and 1,269 residential density bonus units granted in 2008 pursuant to state law, but that were not generally located within the Proposed Project Site. A portion of the original 3,625 original dwelling units are being relocated to different Districts than the ones in which they were originally located for analysis in the Certified EIR. The Modified Project also includes certain reconfiguration of the non-residential development. The peak hour and

5. Environmental Analysis

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average daily trip generation based on the land use trip rates for the Modified Project under each of the future timeframes (2015, 2030 and Post-2030) is summarized in Table 5.11-7.

*Table 5.11-7
Land Use Based Trip Generation Comparison*

<i>Timeframe/Scenario</i>	<i>AM Peak Hour Trips</i>	<i>PM Peak Hour Trips</i>	<i>Average Daily Trips</i>
Year 2015			
2015 Without Modified Project	467	467	5,151
Modified Project	6,582	7,270	73,660
Difference	6,115	6,803	68,509
Year 2030/Post-2030			
Without Modified Project (w/out Density Bonus Units)	8,899	11,806	118,113
Modified Project	11,112	13,253	129,535
Difference	2,213	1,447	11,422

5.11.4.2 Existing-Plus-Modified Project

Existing-Plus-Modified Project Circulation System and ADT Volumes including Density Bonus Units

The baseline for this DSEIR is the Approved Project, not the existing conditions at the time that the environmental documentation is prepared. Nonetheless, for informational purposes only, this report includes the Existing-Plus-Modified Project conditions analysis. This scenario assumes that the Modified Project (including the 1,269 density bonus units) would be constructed immediately. “Existing” refers to the conditions in the study area at the time the Traffic Study was prepared. The Existing -Plus-Modified Project analysis is a theoretical construct; a project of this scale will obviously not occur instantaneously, and this scenario does not take into account the cumulative growth that would occur during the course of development of the Modified Project, which would include various on-site and off-site infrastructure improvements in conjunction with progressive growth in the NITM area.

The Existing-Plus-Modified Project average daily traffic (“ADT”) volumes and corresponding V/C ratios are illustrated in Figures 5.11-10 and 5.11-11, respectively. Based on the ADT V/C performance criteria and impact thresholds set forth in Table 5.11-1, the following nine arterial roadway segments are potentially impacted by the Modified Project:

- Bake Pkwy (north of Commercenter Dr.)
- Bake Pkwy (north of Irvine Blvd.)
- Bake Pkwy (Toledo Way to Jeronimo Road)
- Bake Pkwy (north of Muirlands Blvd.)
- Bake Pkwy (south of Rockfield Blvd.)
- Lake Forest Drive (south of Rockfield Blvd.)
- Irvine Blvd. (east of SR-133 northbound ramps)
- Sand Canyon Avenue (I-5 southbound ramps to Burt Road)
- Sand Canyon Avenue (Burt Road to Oak Canyon/Laguna Canyon Road)

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As shown in Figure 5.11-11, all arterial roadway segments are forecast to operate at acceptable levels of service during peak hours, with the exception of Bake Parkway between the I-5 northbound ramps and Rockfield Boulevard. At this location, the AM peak hour volume in the northeast direction approaches the capacity of the existing three through travel lanes (assuming buildout of the Modified Project).

Project design features identified in the “Bake Parkway-Marine Way Circulation System Amendment Traffic Study” (Parsons Brinkerhoff, June 2008) address the Bake Parkway/I-5/Marine Way project intersection impacts, and improvements already committed to be built address link impacts. The committed improvements at this location consist of adding a fourth northbound through lane on Bake Parkway northeast of the existing I-5 bridge. Southbound Bake Parkway will be improved to provide four through lanes which transition to three through lanes at the I-5 northbound on-ramp, and the I-5 northbound off-ramp at Bake Parkway (westbound intersection approach) would be widened to provide one left-turn lane and three right-turn lanes.

Existing-Plus-Modified Project Peak Hour Intersection LOS

To address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway ramp intersections at Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard have been analyzed using HCM methodology in addition to the ICU methodology. The resulting Existing-Plus-Modified Project peak hour levels of service based on the HCM methodology are summarized in Table 5-4 in the Traffic Study (Appendix M). As the table indicates, each of the ramp intersections is forecast to operate at an acceptable LOS under the Existing-Plus-Modified Project conditions.

In addition to a peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. As shown in Table 5-5 of the Traffic Study, none of the vehicle queue lengths exceed the physical length of the off-ramps, and, therefore, traffic exiting the I-5 at the Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under the Existing-Plus-Modified Project conditions. The on-ramps at the Sand Canyon Avenue/I-5 interchanges are metered with queue detectors, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine to ensure that on-ramp traffic does not back up onto City arterial roadways.

Existing-Plus-Modified Project Peak Hour Freeway/Tollway Ramp LOS

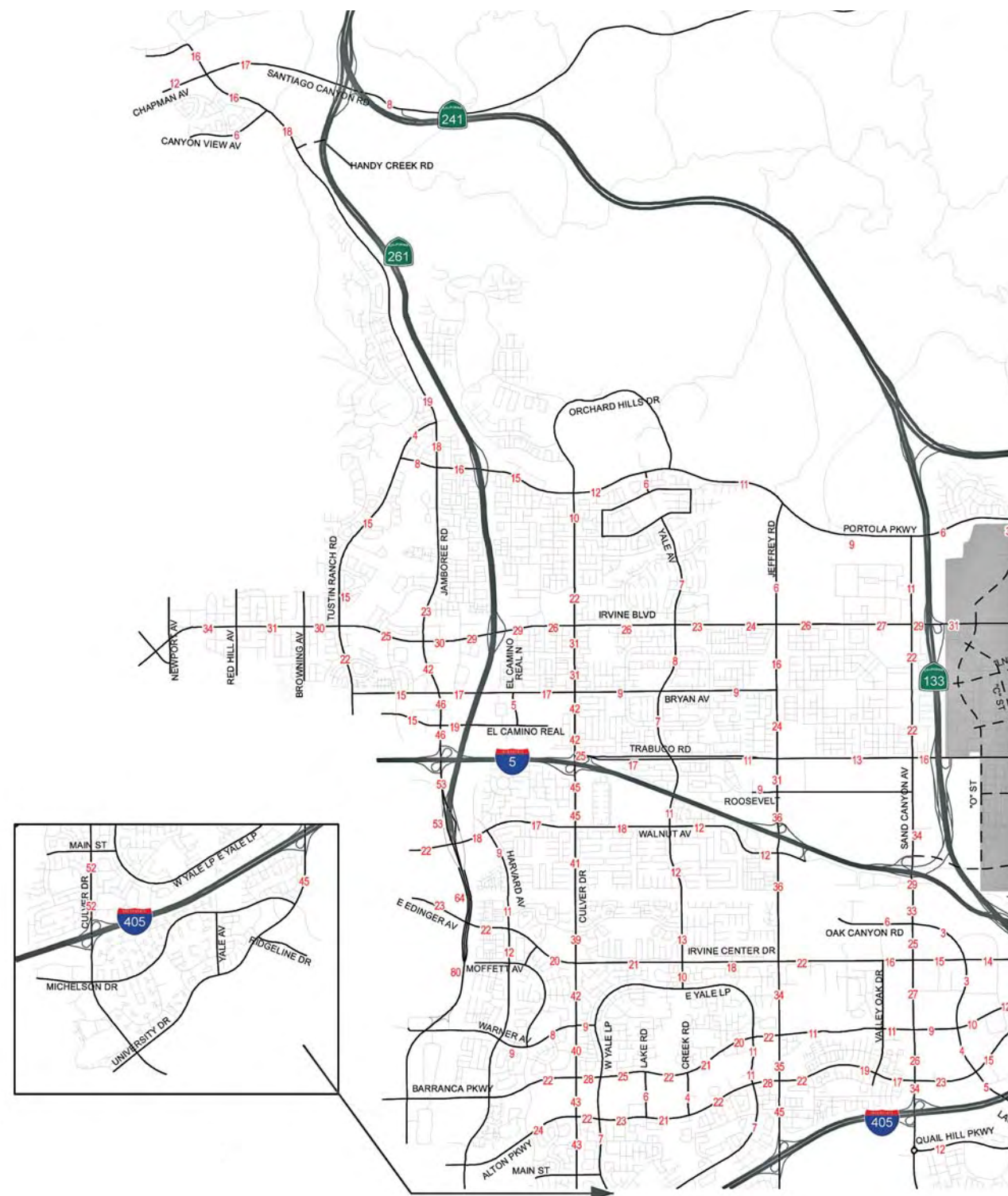
Existing-Plus-Modified Project AM and PM peak hour ramp volumes and V/C ratios are shown in Table 5-6 of the Traffic Study. Based on the peak hour ramp performance criteria and impact thresholds previously discussed, one freeway ramp is forecast to exceed adopted impact thresholds under the Existing-Plus-Modified Project (e.g., greater than or equal to 0.02, except at CMP locations outside the City of Irvine where it is greater than 0.03) conditions:

- SR-133 southbound loop on-ramp at Barranca Pkwy

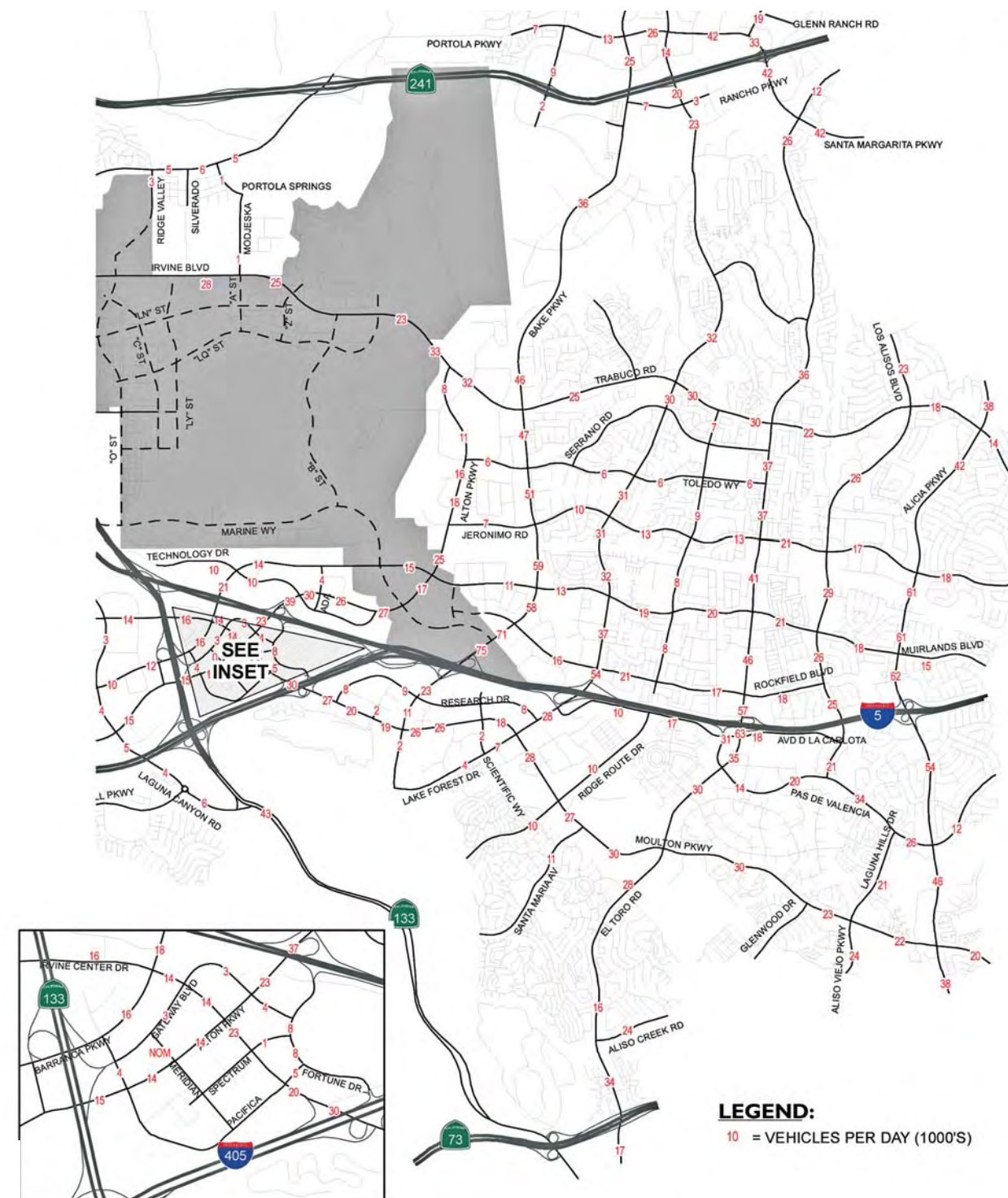
Existing Plus Project Peak Hour Freeway/Tollway Mainline LOS

Existing-Plus-Modified Project AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are shown in Table 5-7 of the Traffic Study. None of the freeway mainline segments are forecasted to exceed adopted impact thresholds under the Existing-Plus-Modified Project condition.

Existing-Plus-Project ADT Volumes–With Density Bonus Units



West Study Area



East Study Area

LEGEND:
10 = VEHICLES PER DAY (1000'S)

0 6,000
Scale (Feet)

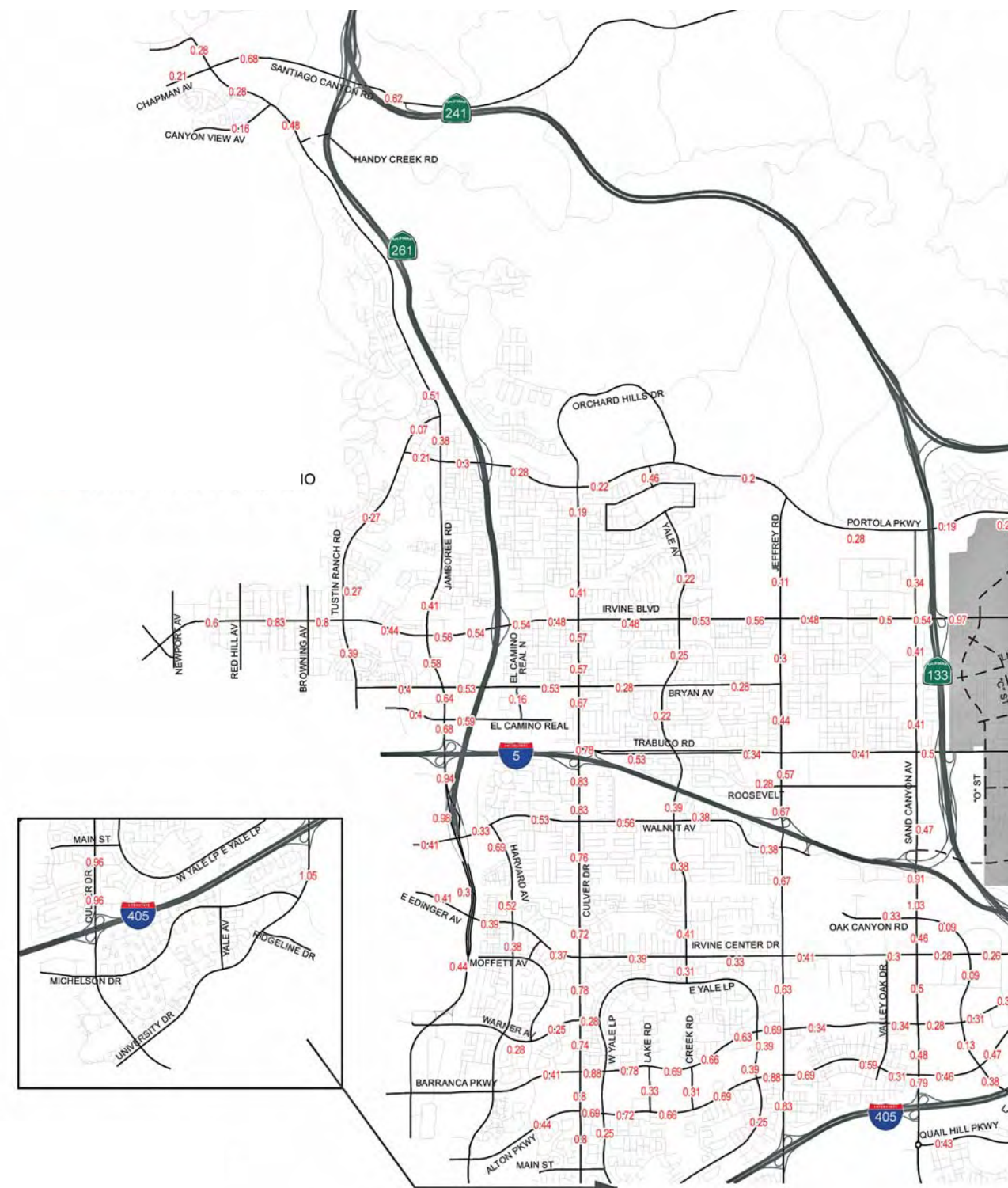


5. Environmental Analysis

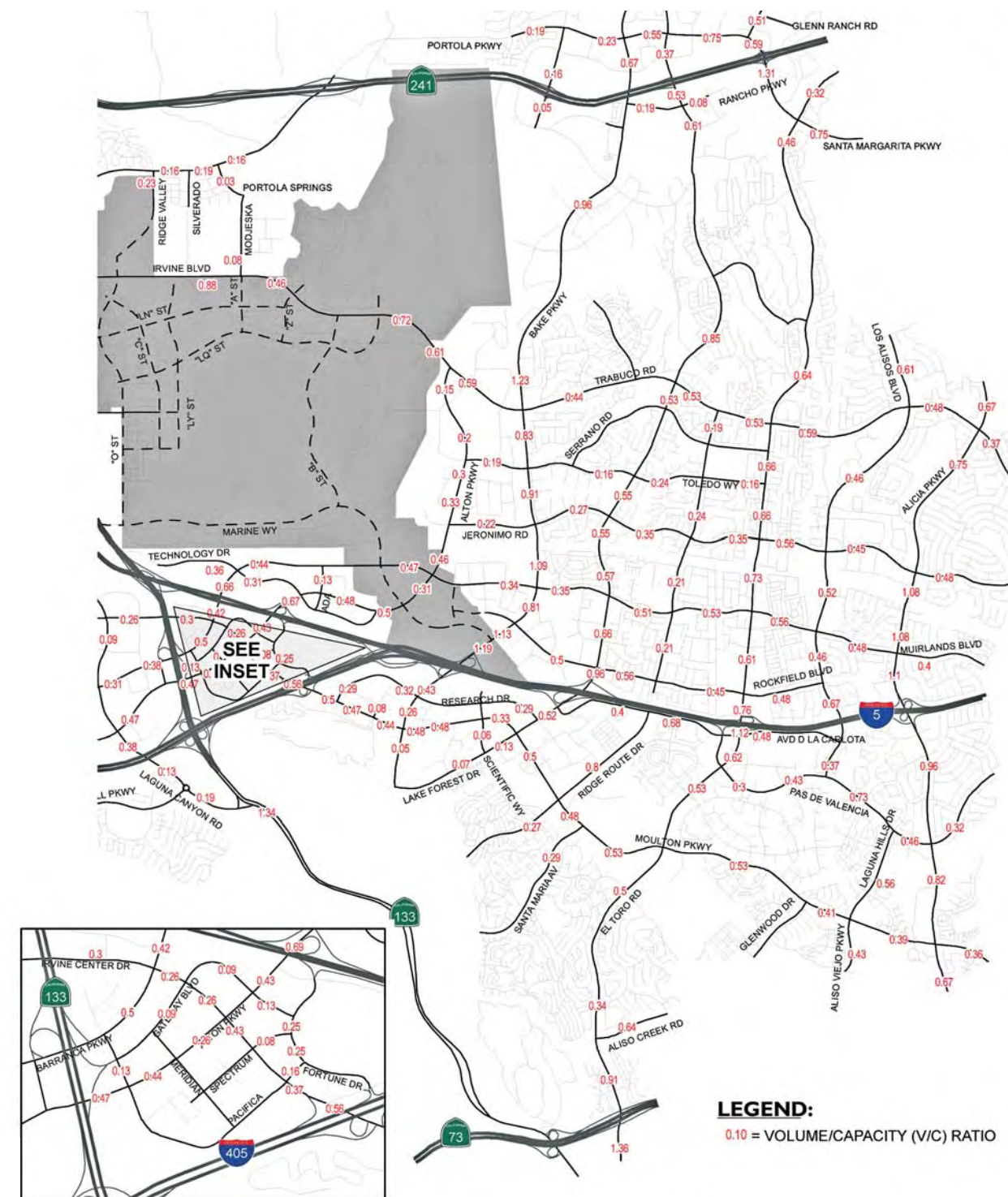
TRANSPORTATION AND TRAFFIC

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Existing-Plus-Project ADT V/C Ratios—With Density Bonus Units



West Study Area



East Study Area

LEGEND:
0.10 = VOLUME/CAPACITY (V/C) RATIO

0 6,000
Scale (Feet)



5. Environmental Analysis

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Existing Plus Project Intersection Impact Location (ICU Methodology)

The improvements identified in the “Bake Parkway-Marine Way Circulation System Amendment Traffic Study” (Parsons Brinckerhoff, June 2008), address the intersection peak hour impact under the Existing-Plus-Modified Project condition. The improvements are identified in Table 4-9 of the Traffic Study and consist of adding a fourth northbound through lane on Bake Parkway northeast of the existing I-5 bridge, and widening southbound Bake Parkway to provide four through lanes with a transition to three through lanes at the I-5 northbound on-ramp. The I-5 northbound off-ramp at Bake Parkway (westbound intersection approach) will also be widened to provide one left-turn lane and three right-turn lanes. With these improvements, the ramp will operate at an acceptable level of service (see Table 5.11-8 below) for the Existing-Plus-Modified Project.

*Table 5.11-8
Existing-Plus-Modified Project Intersection ICU LOS Modified
Project Impact Location With Mitigation*

<i>Intersection</i>	<i>Peak Hour</i>	<i>Existing Without Modified Project</i>		<i>Modified Project</i>		<i>With Mitigation</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
367. Bake & I-5 NB Ramps	AM	0.86	D	1.04	F	0.76	C

Existing-Plus-Modified Project Freeway Ramp Impact Location

Conditions under the Existing-Plus-Modified Project scenario exceed adopted impact thresholds at one freeway interchange:

- SR-133 southbound loop on-ramp at Barranca Parkway

This ramp is a fair-share funded NITM improvement location. The improvement that would address this impact under the Existing-Plus-Modified Project scenario is the conversion of the HOV preferential lane to a second metered mixed-flow lane.

5.11.4.3 Interim Year 2015 Traffic Impacts with Modified Project

The following sub-sections summarize the resulting Year 2015 Without Modified Project and Year 2015 Modified Project traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

Interim Year 2015 Circulation System and Average Daily Traffic Volumes, with Modified Project

The Year 2015 Modified Project ADT volumes and the corresponding V/C ratios are illustrated in Figures 5.11-12a and b, and Figures 5.11-13a and b, respectively.

Based on the ADT and V/C performance criteria and impact thresholds, the following five (5) arterial roadway segments are potentially impacted by the Modified Project:

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- Irvine Blvd. (west of LQ St)
- Irvine Blvd. (east of LQ St)
- Jeffrey Rd (Roosevelt to I-5 northbound ramps)
- Jeffrey Rd (Quailcreek to I-405 northbound ramps)
- Lake Forest Dr (Rockfield Blvd to I-5 northbound ramps)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2015 Modified Project conditions are summarized in Table 6-7 of the Traffic Study. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed the adopted thresholds.

Interim Year 2015 Modified Project Peak Hour Intersection Levels of Service

Year 2015 Modified Project AM and PM peak hour ICU results for the intersections illustrated in Figure 5.11-14 that are part of the study area are summarized in Table 6-8 of the Traffic Study. Actual turn volumes, lane geometrics and ICU calculation worksheets for the Year 2015 Modified Project scenario are included in Appendix 6.5 of the Traffic Study. Based on the peak hour intersection performance criteria and impact thresholds, the following intersection listed in Table 5.11-9 exceeds adopted impact thresholds under the Year 2015 Modified Project conditions:

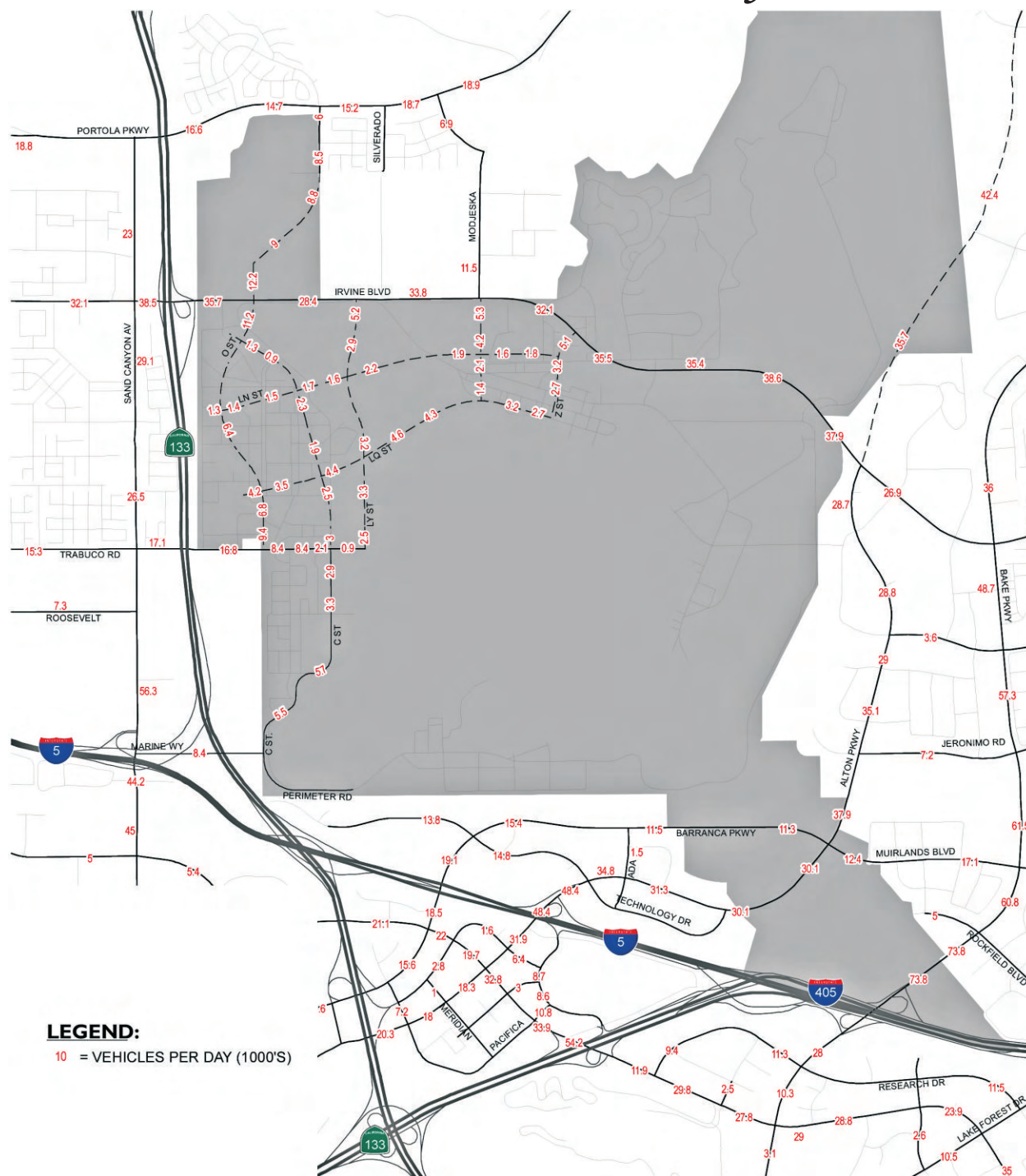
*Table 5.11-9
Intersection ICU LOS With Year 2015 Modified Project
Project Impact Location*

<i>Intersection</i>	<i>Peak Hour</i>	<i>2015 Without Modified Project</i>		<i>2015 Modified Project</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
432. Alicia & Muirlands	PM	0.91	E	0.93	E

As previously stated, to address concerns expressed by Caltrans regarding the performance of ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway ramp intersections at Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard interchanges have been analyzed using the HCM methodology in addition to the ICU methodology. The resulting Year 2015 Without Project and Year 2015 Modified Project peak hour levels of service based on the HCM methodology are summarized in Table 6-10 of the Traffic Study (HCM intersection LOS calculation worksheets are included in Appendix 6.6 of the Traffic Study). As the summary table indicates, each of the ramp intersections are forecast to operate at an acceptable LOS (i.e., LOS D or better) under the Year 2015 Modified Project condition.

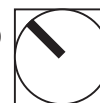
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Year 2015 ADT Volumes—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

Great Park Neighborhoods Draft Supplemental EIR

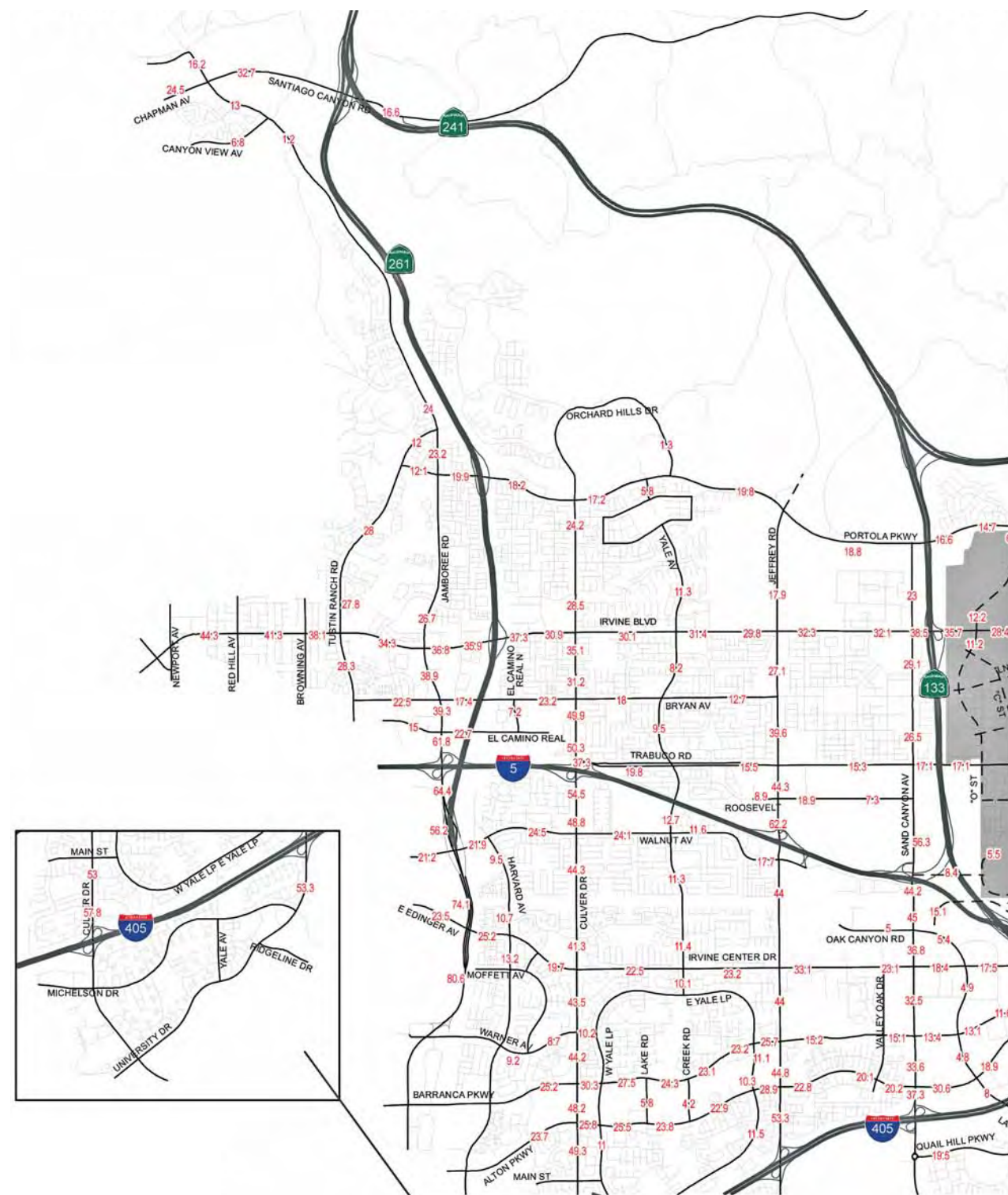
City of Irvine • **Figure 5.11-12a**

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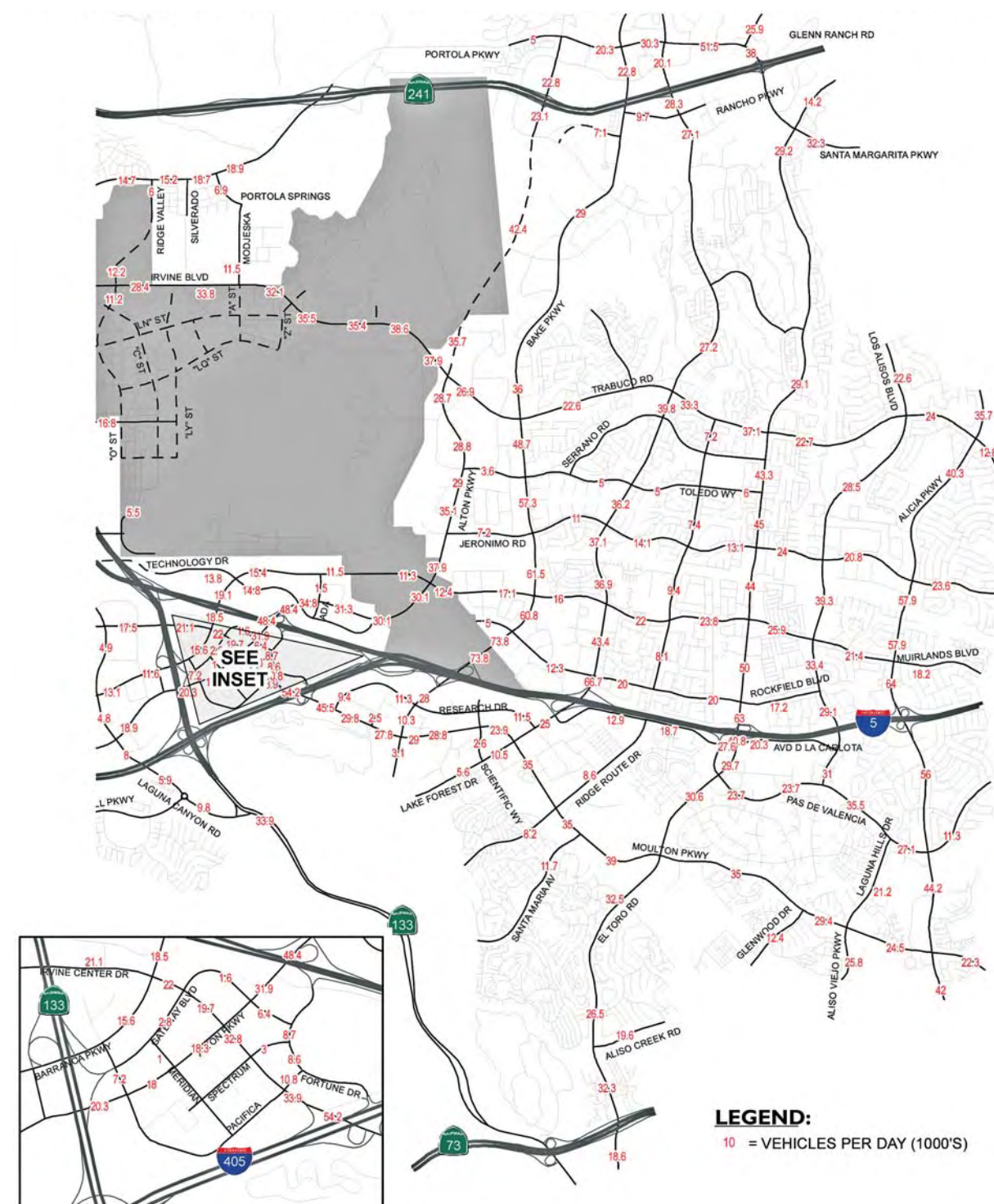
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Year 2015 ADT Volumes–With Modified Project, With Density Bonus Units



West Study Area



East Study Area

LEGEND:
10 = VEHICLES PER DAY (1000'S)

0 6,000
Scale (Feet)



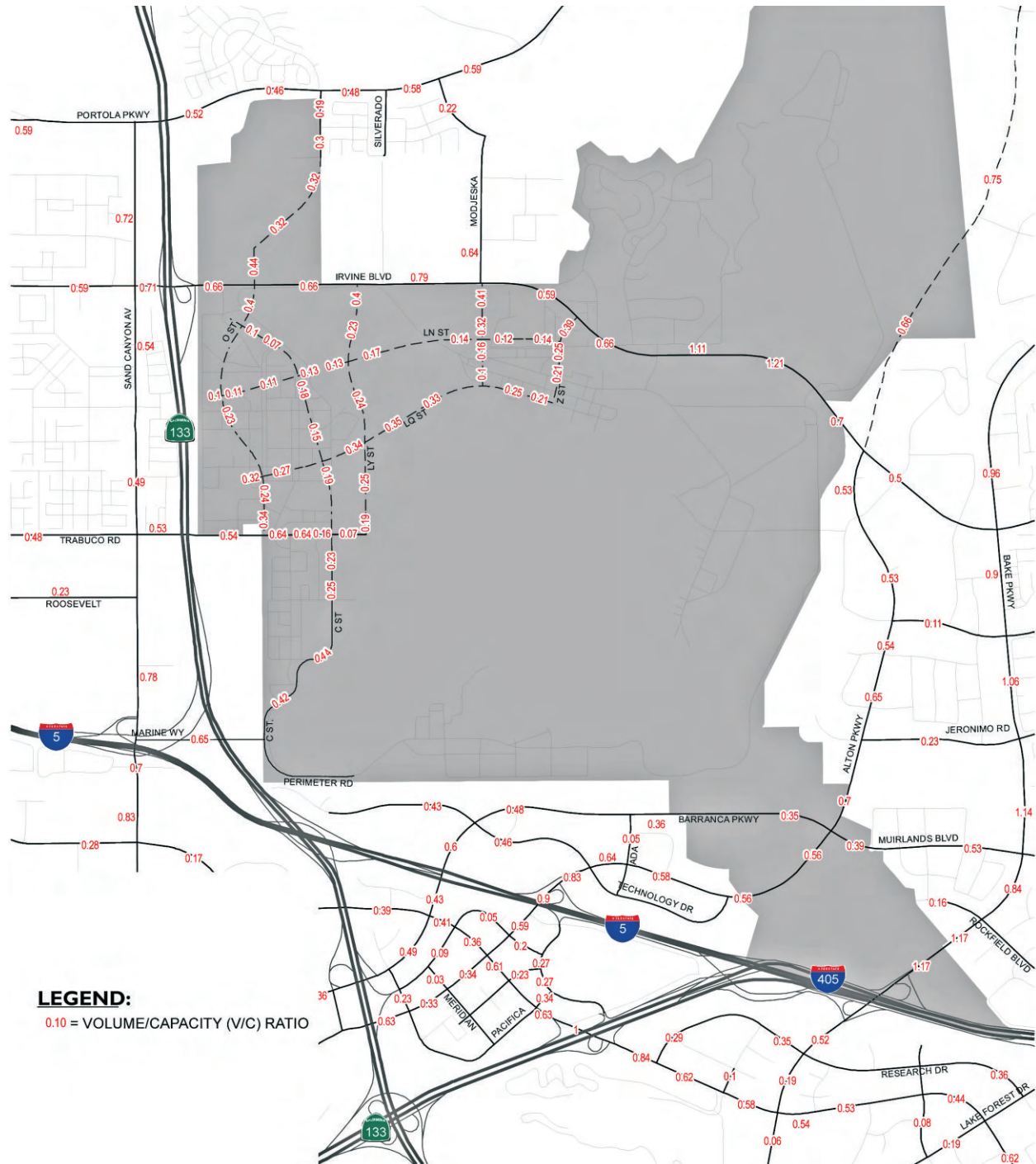
5. Environmental Analysis

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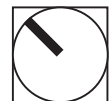
5. Environmental Analysis

Year 2015 ADT V/C Ratios—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

Great Park Neighborhoods Draft Supplemental EIR

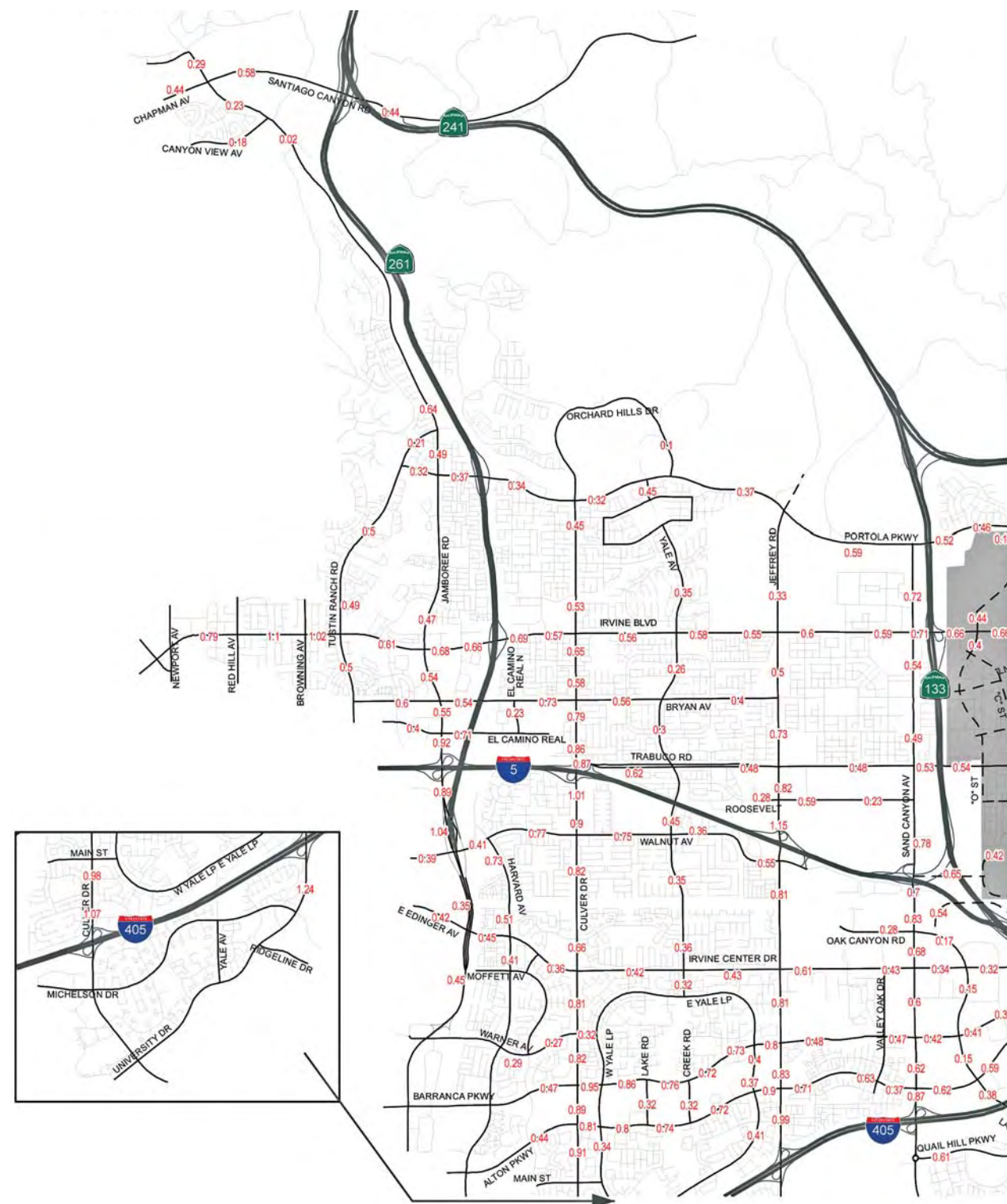
City of Irvine • **Figure 5.11-13a**

5. Environmental Analysis

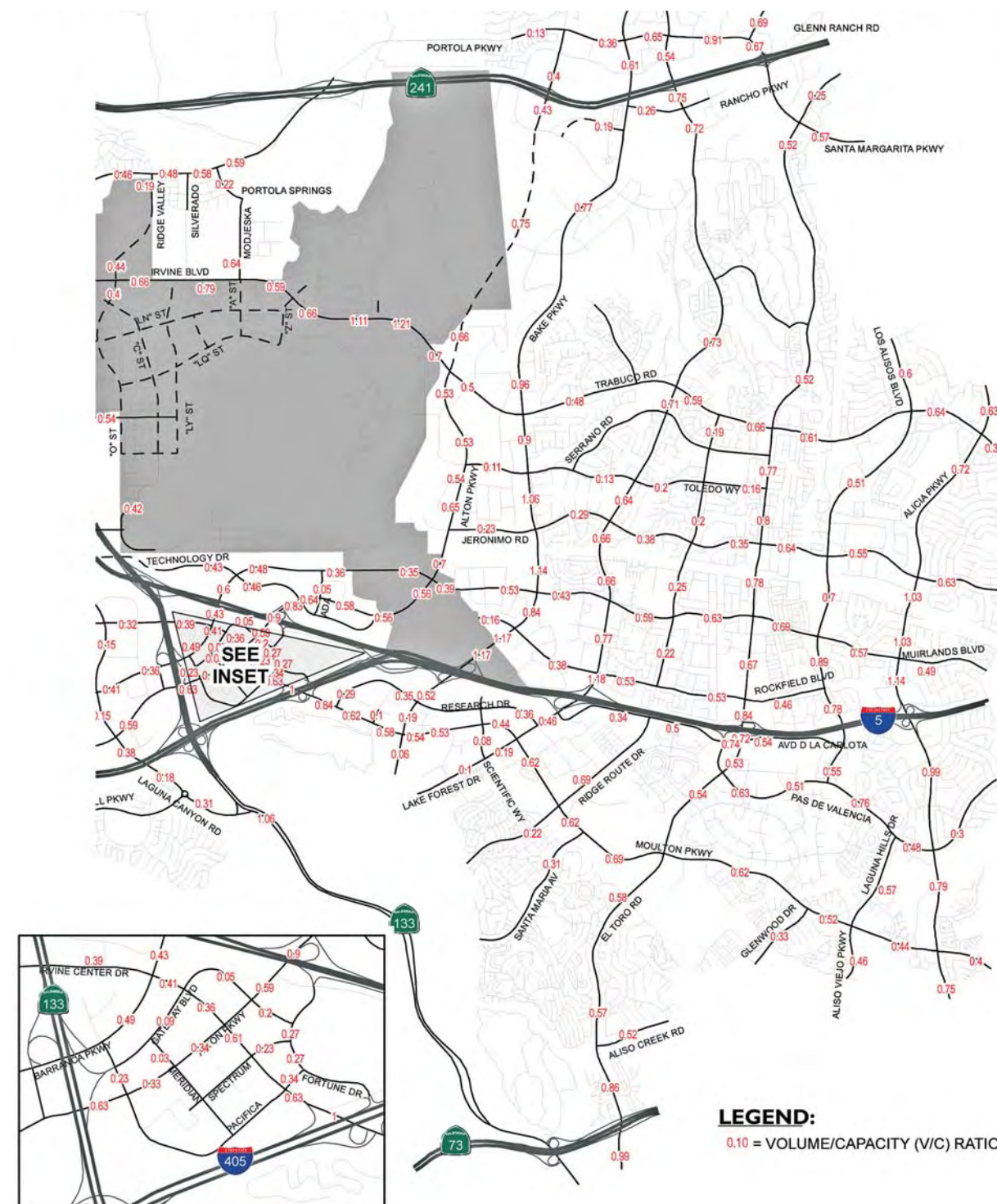
TRANSPORTATION AND TRAFFIC

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Year 2015 ADT V/C Ratios–With Modified Project, With Density Bonus Units



West Study Area



East Study Area

LEGEND:
0.10 = VOLUME/CAPACITY (V/C) RATIO

0 6,000
Scale (Feet)

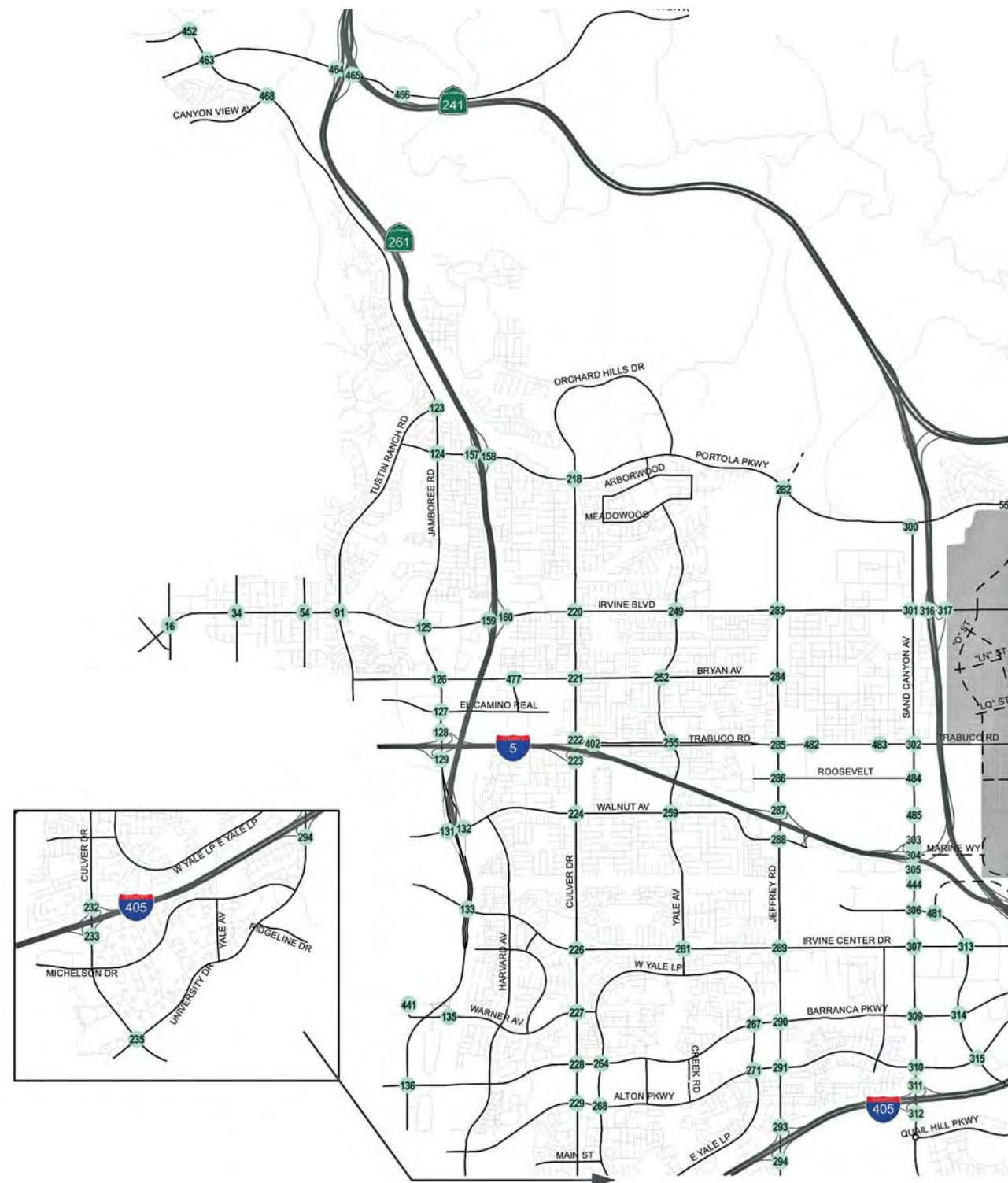


5. Environmental Analysis

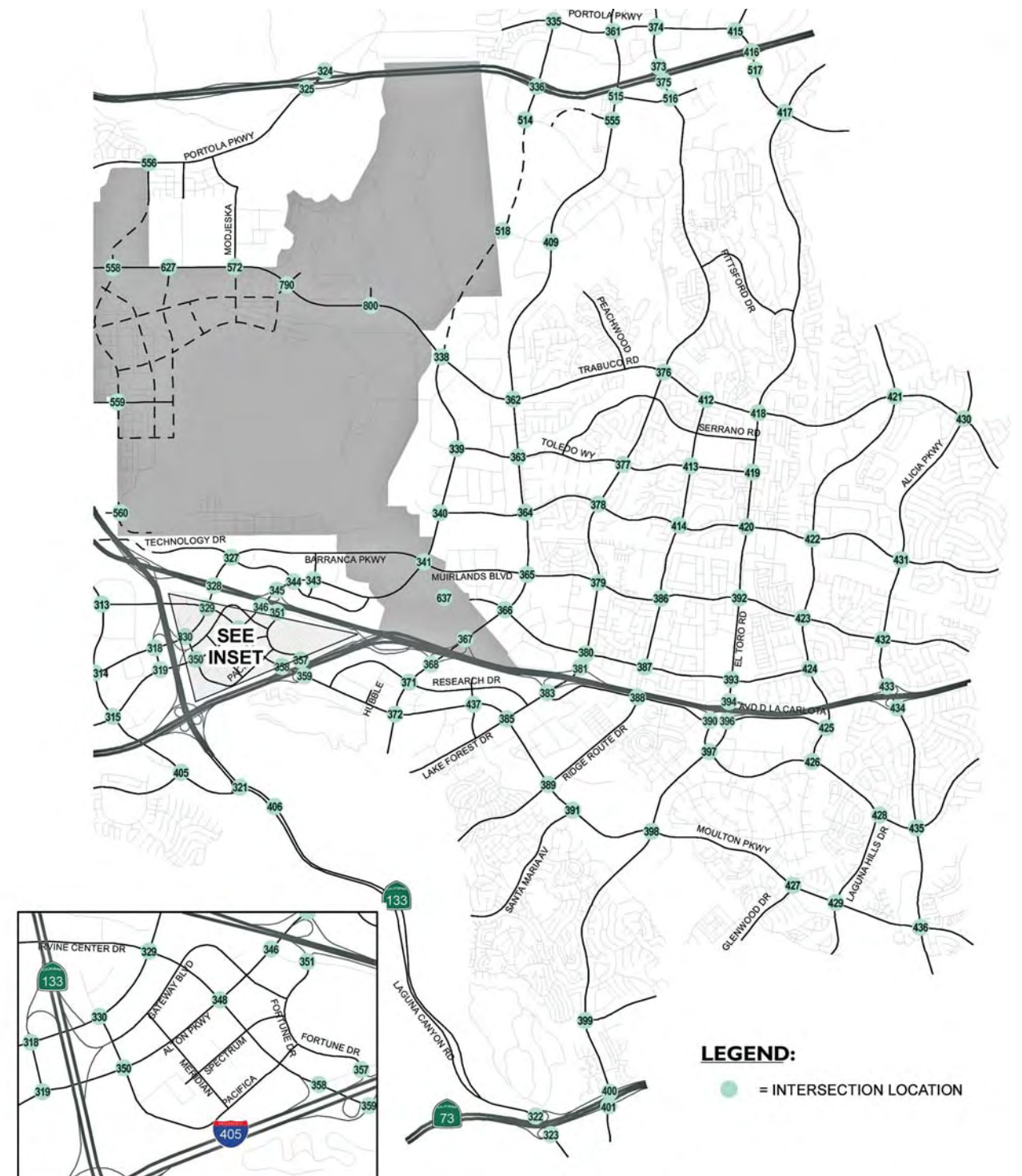
TRANSPORTATION AND TRAFFIC

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Year 2015 Intersection Location Map



West Study Area



East Study Area

LEGEND:
● = INTERSECTION LOCATION

0 6,000
Scale (Feet)



5. Environmental Analysis

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In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 freeway ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5 and SR-133/Irvine Boulevard ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection (see Table 5-5 of the Traffic Study). Table 6-11 of the Traffic Study summarizes the longest 95th percentile queue length at each off-ramp under Year 2015 Modified Project peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 6.7 of the Traffic Study). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting at the I-5 at Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under Year 2015 Modified Project conditions. The on-ramps at the Sand Canyon Avenue/I-5 interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine.

Interim Year 2015 Peak Hour Freeway/Tollway Ramp Levels of Service

Figure 5.11-15 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2015 conditions. Year 2015 Without Project and Year 2015 Modified Project AM and PM peak hour freeway/tollway ramp volumes and V/C ratios are summarized in Table 6-12 of the Traffic Study. Based on the peak hour freeway/tollway ramp performance criteria and impact thresholds presented earlier in this section, none of the freeway ramps are forecasted to exceed the adopted impact thresholds (e.g., greater than or equal to 0.02, except at CMP locations outside the City of Irvine where it is greater than 0.03) under Year 2015 Modified Project conditions.

Interim Year 2015 Peak Hour Freeway/Tollway Mainline Levels of Service

Year 2015 Without Modified Project and 2015 Modified Project AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 6-13 of the Traffic Study. Based on the peak hour mainline performance criteria and impact thresholds, none of the freeway mainline segments are forecasted to exceed adopted impact thresholds (e.g., greater than 0.03) under Year 2015 Modified Project conditions.

Interim Year 2015 Mitigation Measures

In this section, mitigation measures are presented for the intersections identified as being impacted by the 2015 Modified Project based on Year 2015 conditions. It should be noted that the City of Irvine has established NITM to implement and expedite circulation mitigation measures in previous certified CEQA documents. NITM provides a funding mechanism for the coordinated and phased installation of required traffic and transportation improvements established in connection with land use entitlements for City of Irvine Planning Areas 1, 5, 6, 8, 9, 30, 40 and 51. As established by City Ordinance No. 03-20, the Approved Project is included in NITM and, as such, is required to pay its fair share toward the List of NITM Improvements included within the established NITM Program. The NITM fee for the Modified Project will be updated in accordance with the NITM Ordinance if the City approves the Modified Project (TRAN 3).

In addition to the PA 30 and PA 51 NITM fair share fees addressed above, the following discusses the specific mitigation measures proposed for the impacts identified earlier in this section. The mitigation measures are designed to address the Modified Project's impacts by improving the LOS at each impacted location.

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Intersection Impact Locations (ICU Methodology)

The only mitigation measure required for the Year 2015 Modified Project scenario relates to one intersection, Alicia / Muirlands #432, which requires the partial NITM improvement of adding a second southbound left turn lane. Table 5.11-10 below sets forth the AM and PM peak hour ICU results assuming such improvement is made.

*Table 5.11-10
Year 2015 Intersection ICU LOS With 2015 Modified Project
Project Impact Location With Partial NITM Improvement*

<i>Intersection</i>	<i>Peak Hour</i>	<i>Without 2015 Modified Project</i>		<i>2015 Modified Project</i>		<i>Improvement</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
432. Alicia & Muirlands	PM	0.91	E	0.93	E	0.86	D

No other mitigation measures are required for the Year 2015 Modified Project scenario for arterials, freeway ramps or mainlines as no further impacts were identified for these facilities.

5.11.4.4 Year 2030 Analysis with Modified Project

This section compares the 2030 Without Modified Project scenario to the Modified Project in Year 2030. The baseline for this DSEIR is the Approved Project; this section presents a more conservative analysis because the Without Modified Project scenarios does not take into account the density bonus units even though they are a vested part of the Approved Project. As discussed previously, ITAM Version 8.4-10 (ITAM 8.4-10) and the Lake Forest Traffic Analysis Model (LFTAM) were used to prepare the year 2030 Without Modified Project and with Modified Project traffic forecasts that are applied in the analysis. The results of the Year 2030 traffic impact analysis are summarized below.

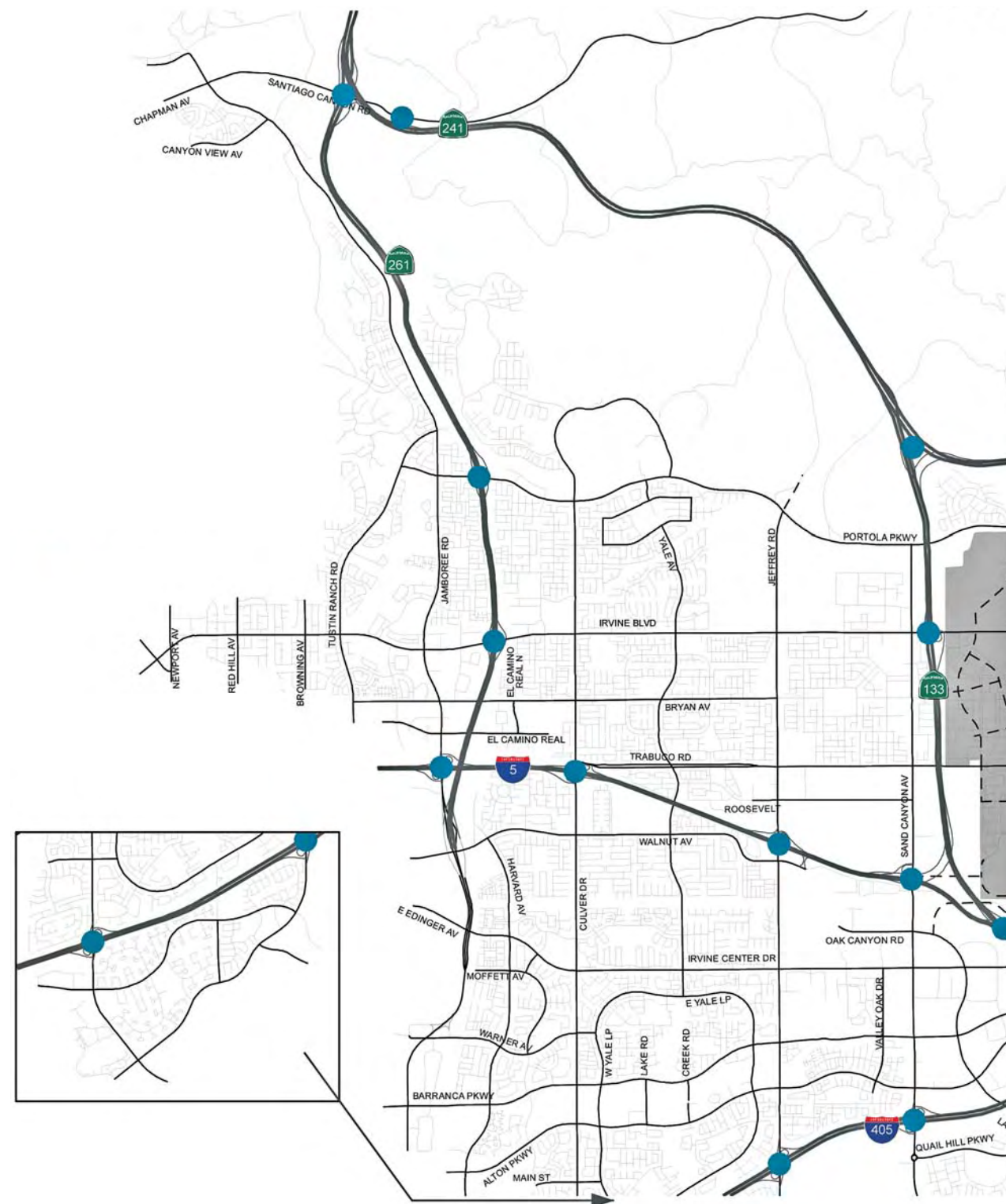
Year 2030 Circulation System and Average Daily Traffic Volumes

The Year 2030 Modified Project ADT volumes and the corresponding V/C ratios are illustrated in Figures 5.11-16a and b, and Figures 5.11-17a and b, respectively.

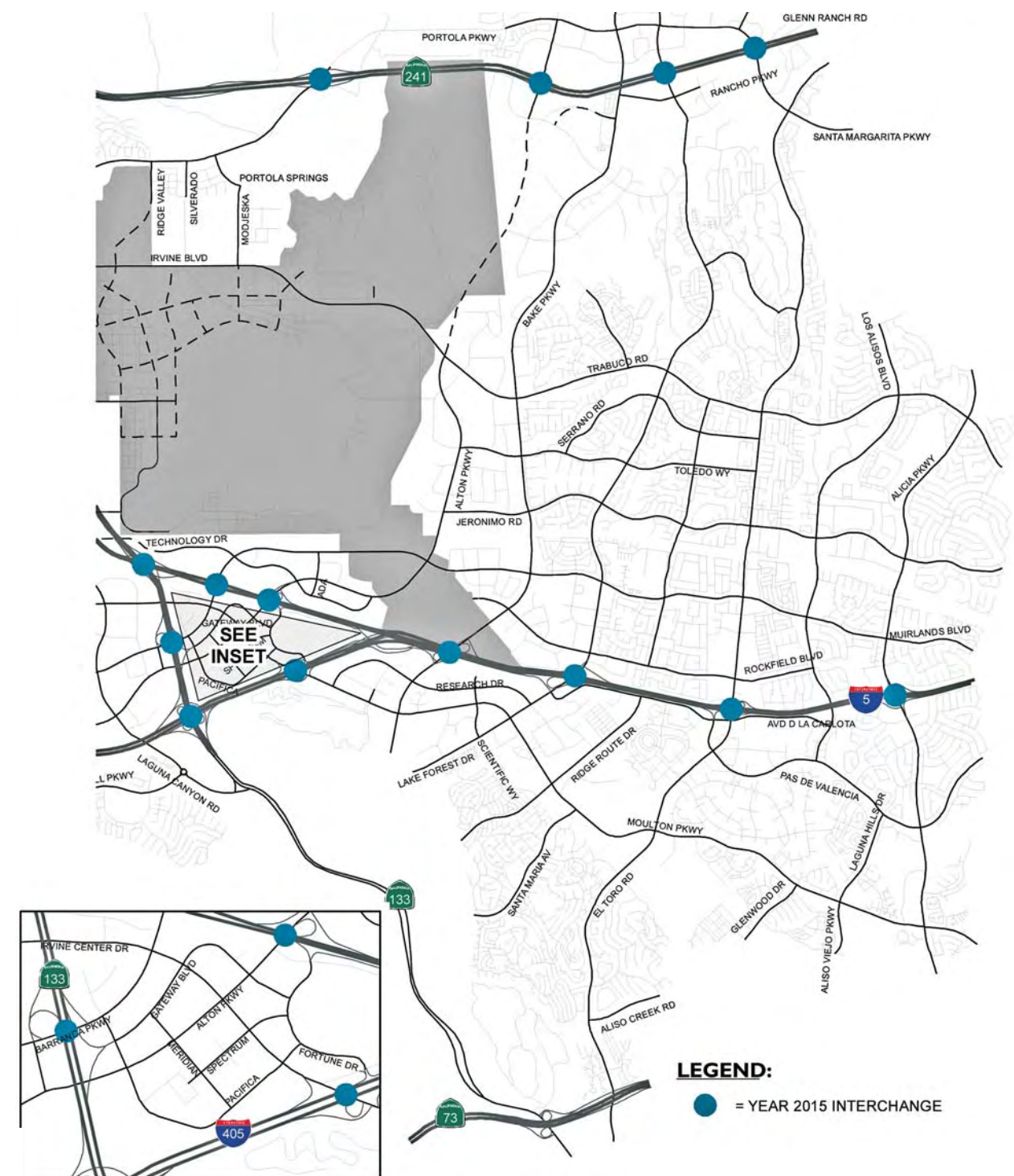
Based on the ADT V/C performance criteria and impact thresholds discussed above, the following four (4) arterial roadway segments are potentially impacted by the Modified Project:

- Alton Pkwy (north of Commercentre)
- Irvine Blvd (east of "LQ" St)
- Irvine Blvd (west of Alton)
- Trabuco Rd (west of "O" St)

Year 2015 Freeway Interchange Locations



West Study Area



East Study Area

LEGEND:

● = YEAR 2015 INTERCHANGE

0 6,000
Scale (Feet)



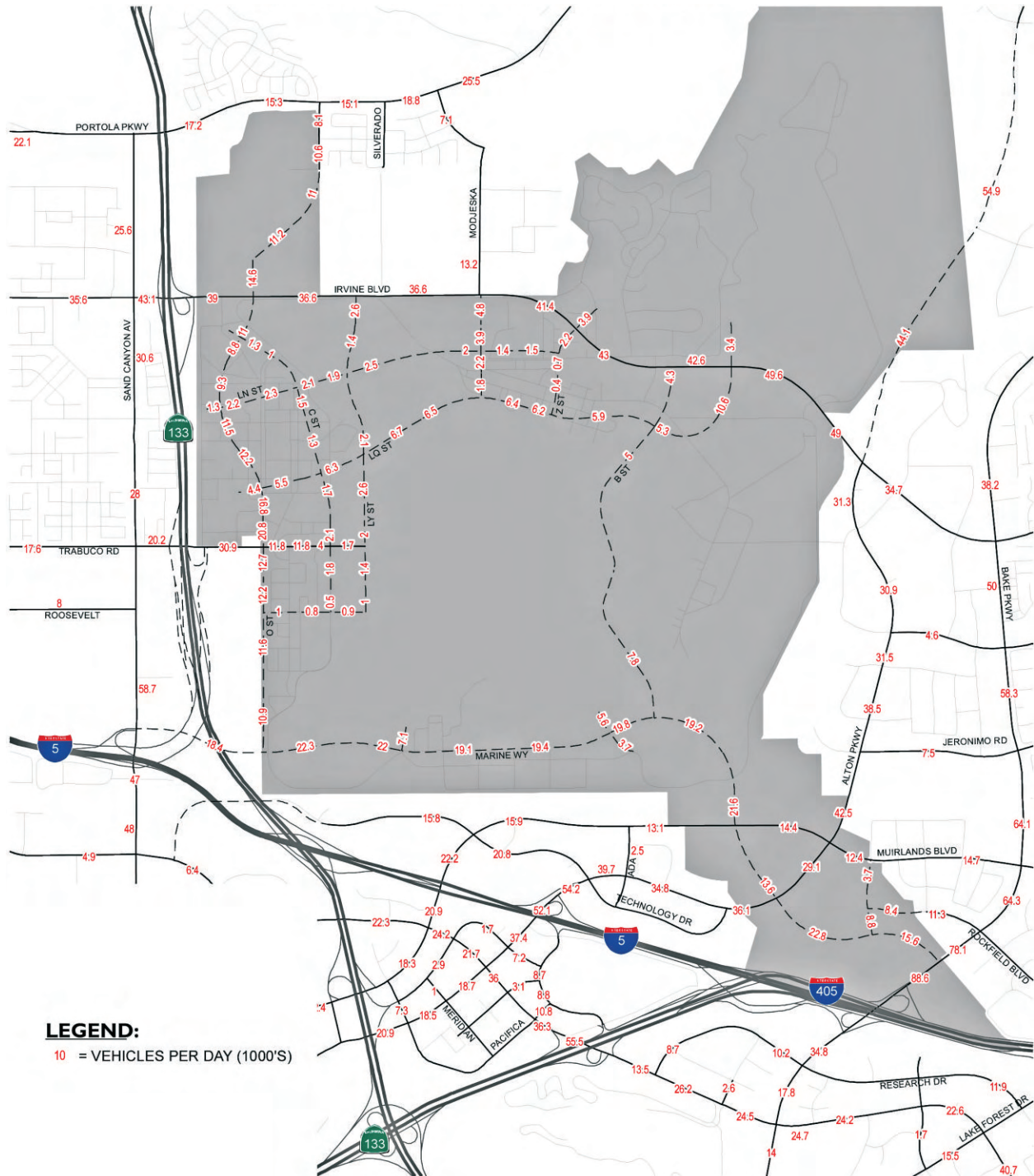
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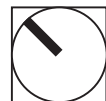
5. Environmental Analysis

Year 2030 ADT Volumes—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

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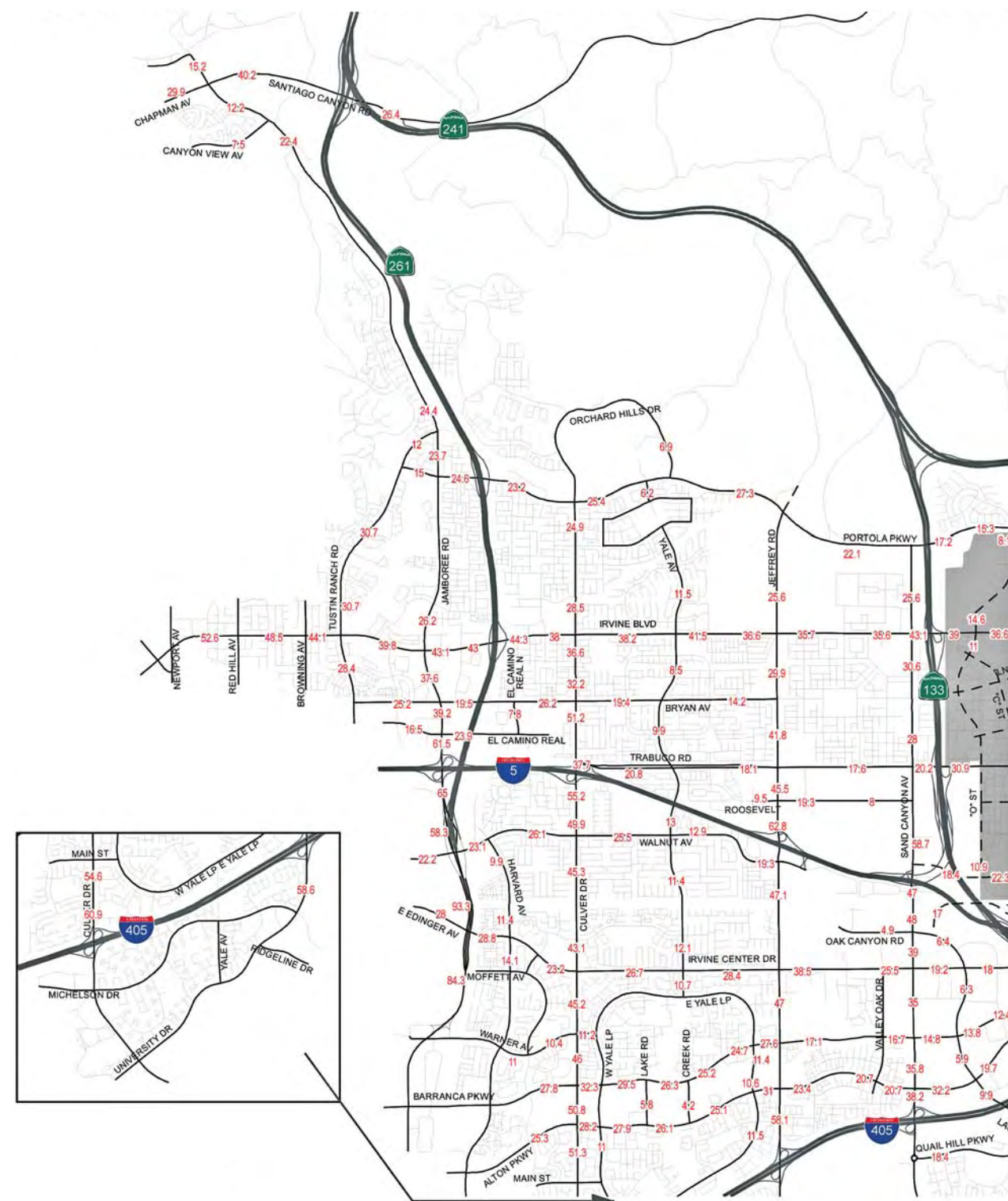
City of Irvine • **Figure 5.11-16a**

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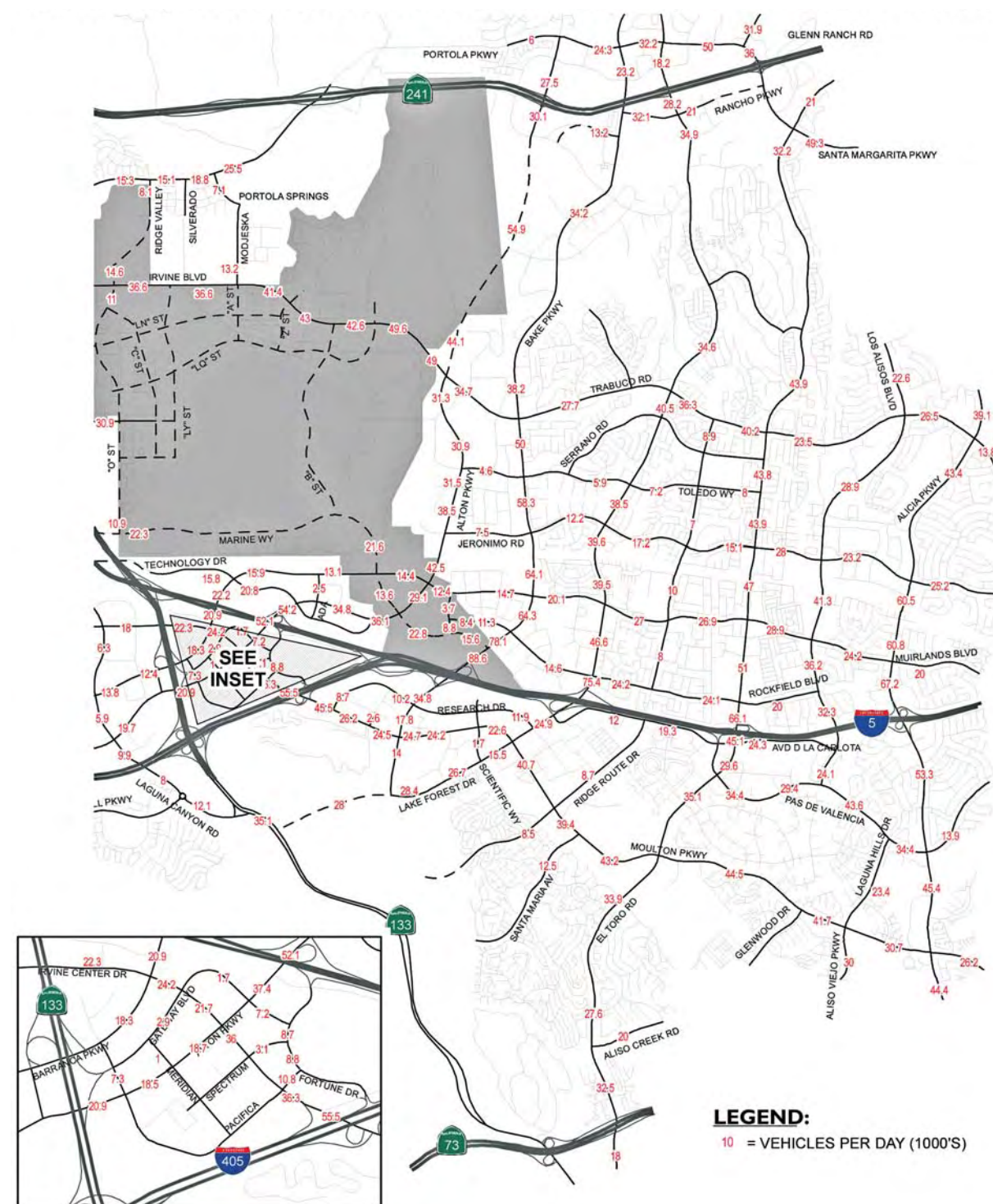
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Year 2030 ADT Volumes–With Modified Project, With Density Bonus Units



West Study Area



East Study Area

LEGEND:
10 = VEHICLES PER DAY (1000'S)

0 6,000
Scale (Feet)



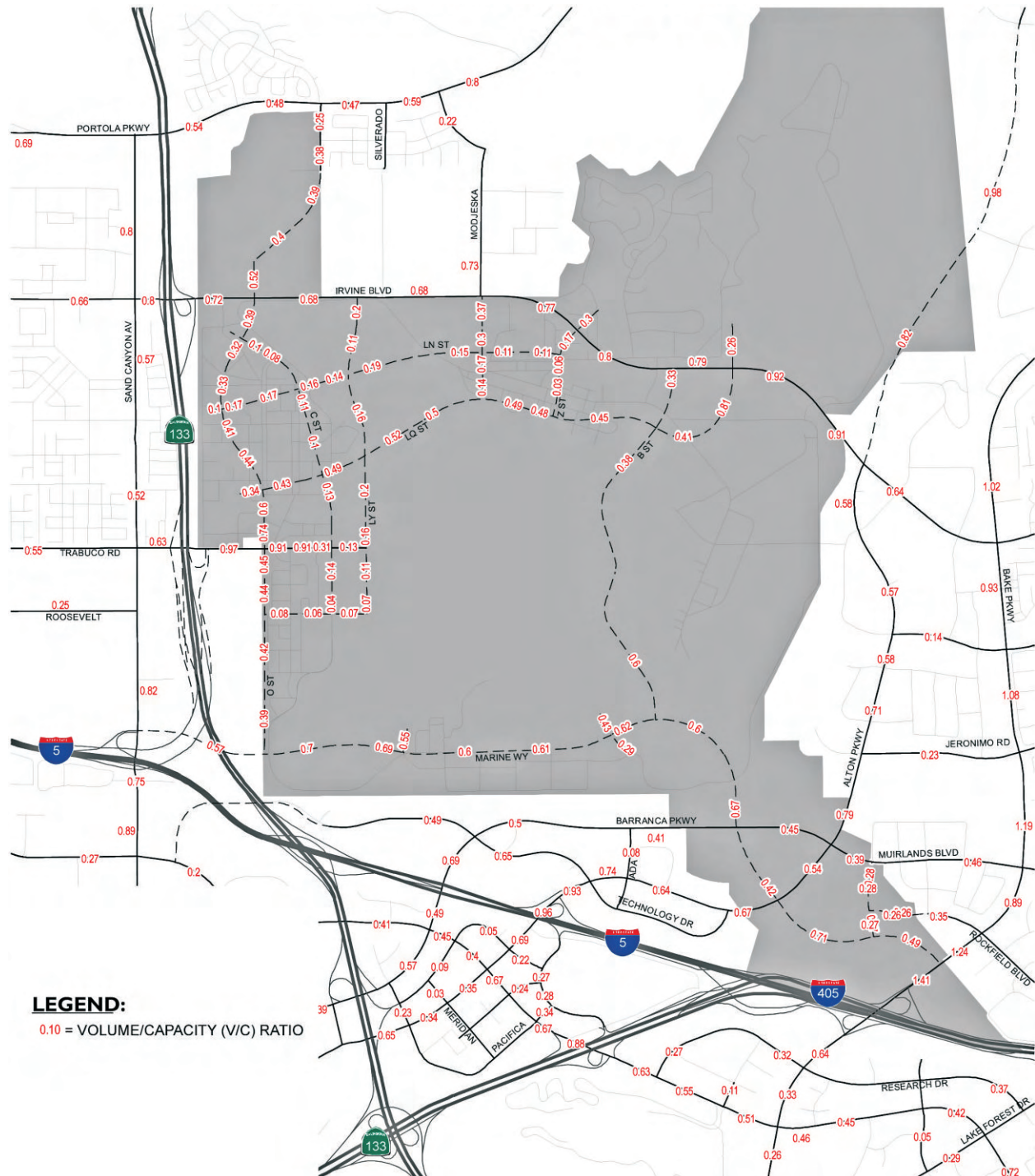
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5. Environmental Analysis

Year 2030 ADT VC Ratios—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

Great Park Neighborhoods Draft Supplemental EIR

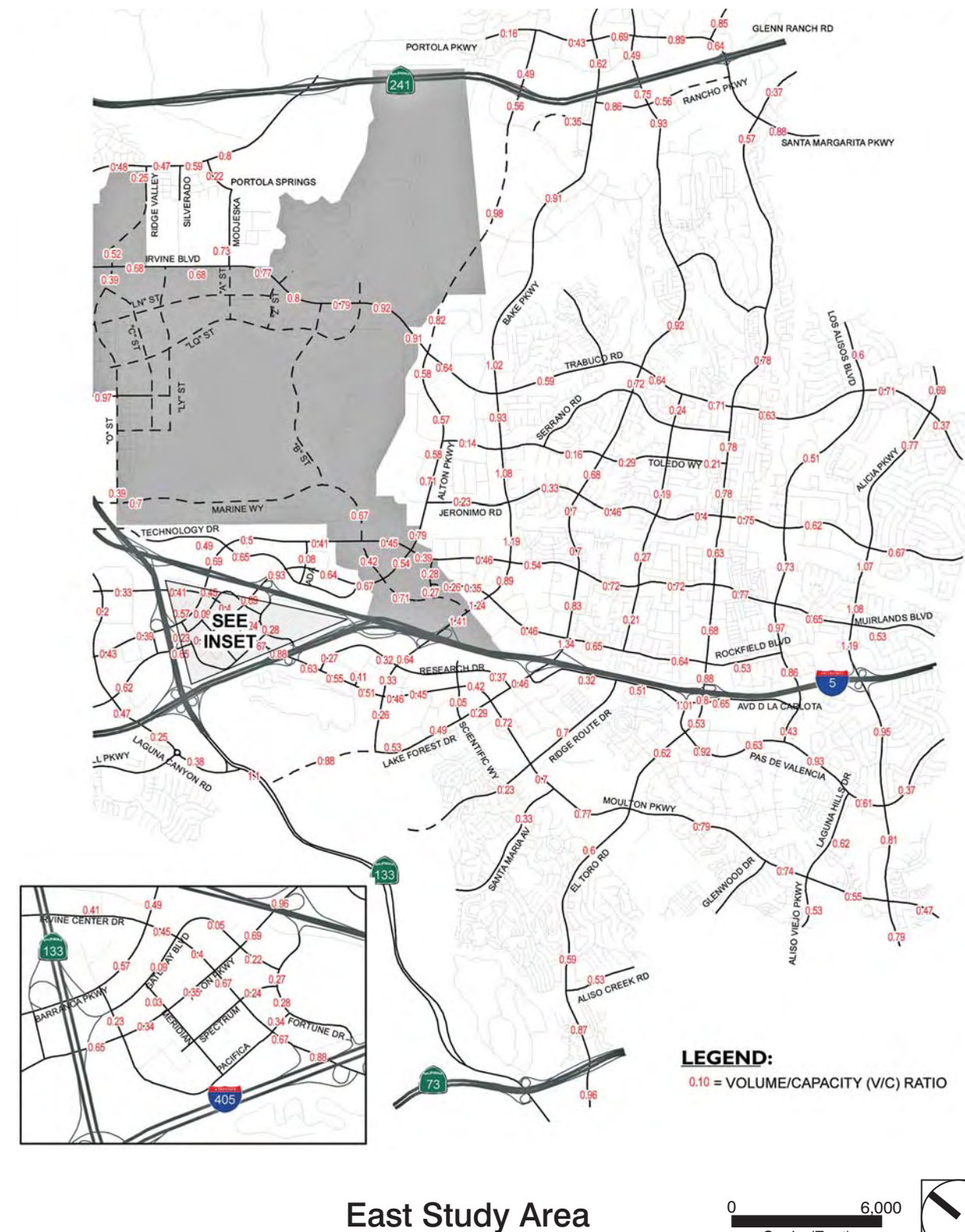
City of Irvine • **Figure 5.11-17a**

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Year 2030 ADT VC Ratios–With Modified Project, With Density Bonus Units



LEGEND:
0.10 = VOLUME/CAPACITY (V/C) RATIO

0 6,000
Scale (Feet)



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Consistent with City of Irvine traffic study guidelines, these locations have been further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Year 2030 Modified Project condition are summarized in Table 7-7 in the Traffic Study. As the summary table indicates, all arterial roadway segments are forecast to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

Year 2030 Peak Hour Intersection Levels of Service

The Year 2030 Modified Project AM and PM peak hour ICU results for the intersections illustrated in Figure 5.11-18 that are in the study area are summarized in Table 7-8 in the Traffic Study. Actual turn volumes, lane geometrics and ICU calculation worksheets for the Year 2030 Modified Project scenario are included in Appendix 7.5 to the Traffic Study. Based on the peak hour intersection performance criteria and impact thresholds, the following intersections shown in Table 5.11-11 exceed adopted impact thresholds under the Year 2030 Modified Project conditions:

*Table 5.11-11
Year 2030 Intersection ICU LOS With Modified Project
Project Impact Locations*

<i>Intersection</i>	<i>Peak Hour</i>	<i>2030 Without Modified Project</i>		<i>2030 Modified Project</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
286. Jeffrey & Roosevelt	AM	0.87	D	0.91	E
344. Alton & Technology	PM	0.93	E	0.95	E
420. El Toro & Jeronimo	AM	0.90	D	0.91	E

To address concerns expressed by Caltrans regarding the performance of freeway/tollway ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using both the HCM methodology and the ICU methodology. The resulting Year 2030 Without Modified Project and with Modified Project peak hour levels of service based on the HCM methodology are summarized in Table 7-10 in the Traffic Study (HCM intersection LOS calculation worksheets are included in Appendix 7.6 to the Traffic Study). As the summary table indicates, each of the ramp intersections is forecasted to operate at an acceptable LOS (i.e., LOS D or better), with the exception of the Sand Canyon/I-5 northbound ramps and the Sand Canyon/I-5 southbound ramps.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 7-11 in the Traffic Study summarizes the longest 95th percentile queue length at each off-ramp under Year 2030 Modified Project peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 7.7 to the Traffic Study). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting at the I-5 at Sand Canyon Avenue off-ramps is not expected to back up onto the I-5

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mainline under Year 2030 Modified Project conditions. The on-ramps at the Sand Canyon Avenue/I-5 interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine.

Year 2030 Peak Hour Freeway/Tollway Ramp Levels of Service

Figure 5.11-19 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Year 2030 conditions. The Year 2030 Without Modified Project and Modified Project AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 7-12 in the Traffic Study. Based on the peak hour ramp performance criteria and impact thresholds presented earlier, none of the freeway ramps are forecasted to exceed adopted impact thresholds (e.g., greater than or equal to 0.02, except at CMP locations outside the City of Irvine where it is greater than 0.03) under Year 2030 Modified Project conditions.

Year 2030 Peak Hour Freeway/Tollway Mainline Levels of Service

The Year 2030 Without Modified Project and Modified Project AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 7-13 in the Traffic Study. Based on the peak hour mainline performance criteria and impact thresholds discussed above, none of the freeway mainline segments are forecasted to exceed adopted impact thresholds (e.g., greater than 0.03).

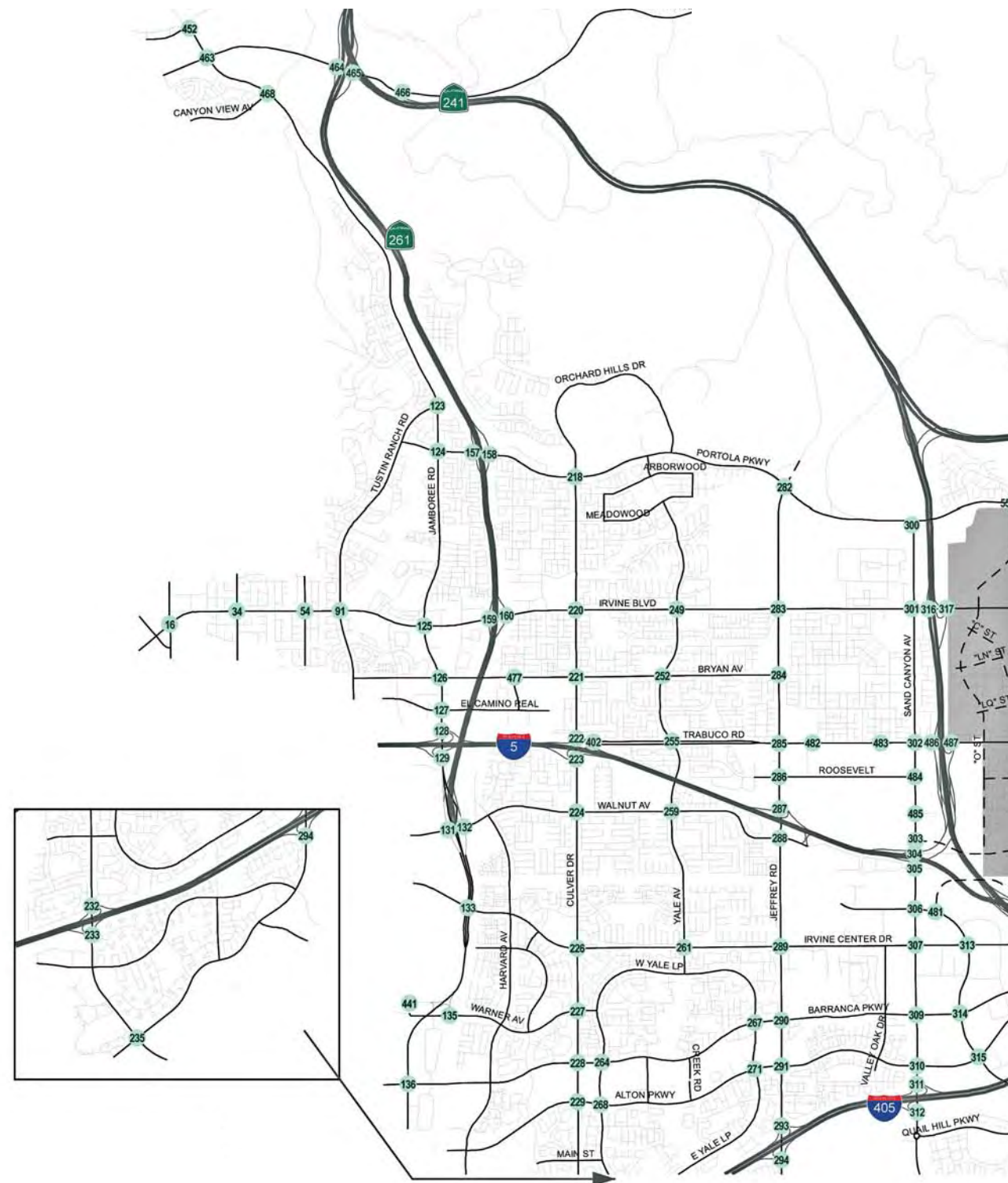
Year 2030 Mitigation Measures

In this section, mitigation measures are presented for the intersections identified as being impacted by the Modified Project based on Year 2030 conditions. It should be noted that the City of Irvine has established the NITM Program to implement and expedite circulation mitigation measures identified in previous certified CEQA documents. The NITM Program provides a funding mechanism for the coordinated and phased installation of required traffic and transportation improvements established in connection with land use entitlements for City of Irvine Planning Areas 1, 5, 6, 8, 9, 30, 40 and 51. As established by Irvine Ordinance No. 03-20, the Approved Project is included in this program and, as such, is required to pay its fair share toward the List of NITM Improvements included within the established NITM Program. If the Modified Project is approved, this NITM fee will be updated in accordance with the NITM Ordinance (TRAN 3).

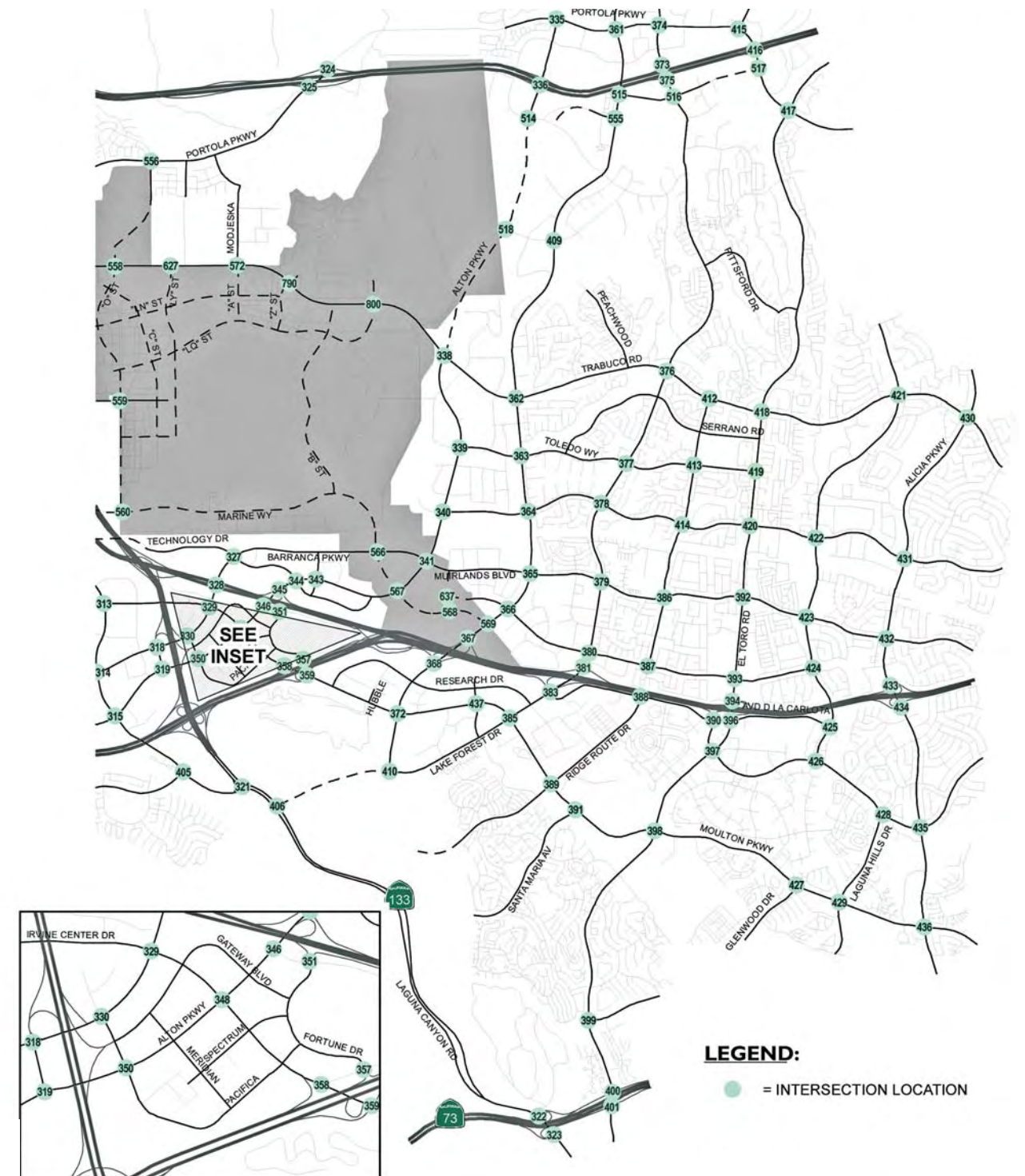
In addition to the PA 30 and PA 51 NITM Program fair share fees addressed above, the Modified Project includes as a design feature associated with development activity in District 5, the provision of an eastbound right turn overlap phasing at the intersection of Alton Parkway at Irvine Boulevard. This signal operation modification will enhance the signal timing dedicated to eastbound right turning vehicles, which will optimize intersection capacity utilization and reduce right turn queues.

The following discusses the specific mitigation measures proposed for the impacts identified above for Year 2030 conditions. The mitigation measures are designed to address the Modified Project's impacts by improving the LOS at each impacted location."

Year 2030 Intersection Location Map



West Study Area



East Study Area

LEGEND:

● = INTERSECTION LOCATION

0 6,000
Scale (Feet)

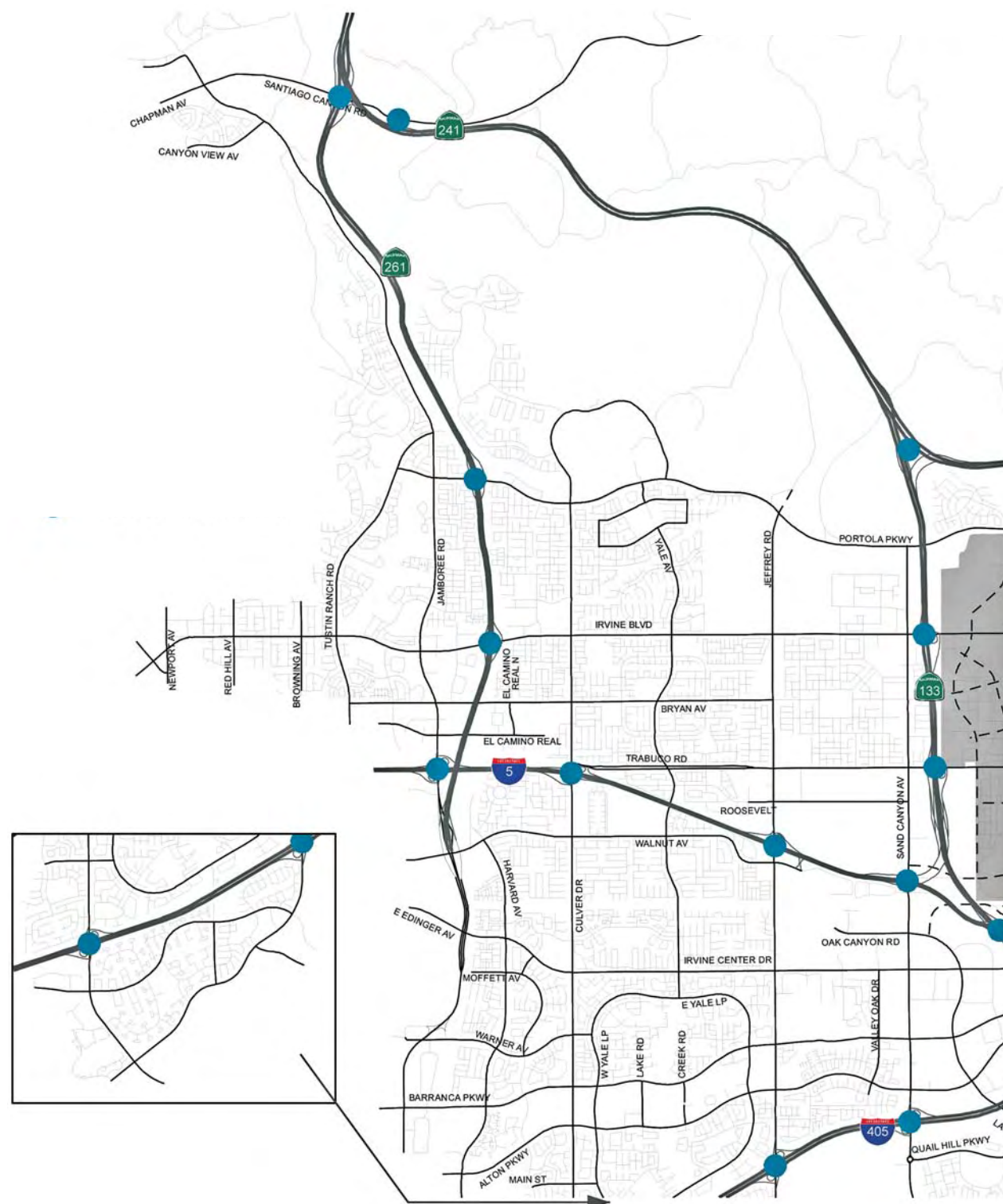


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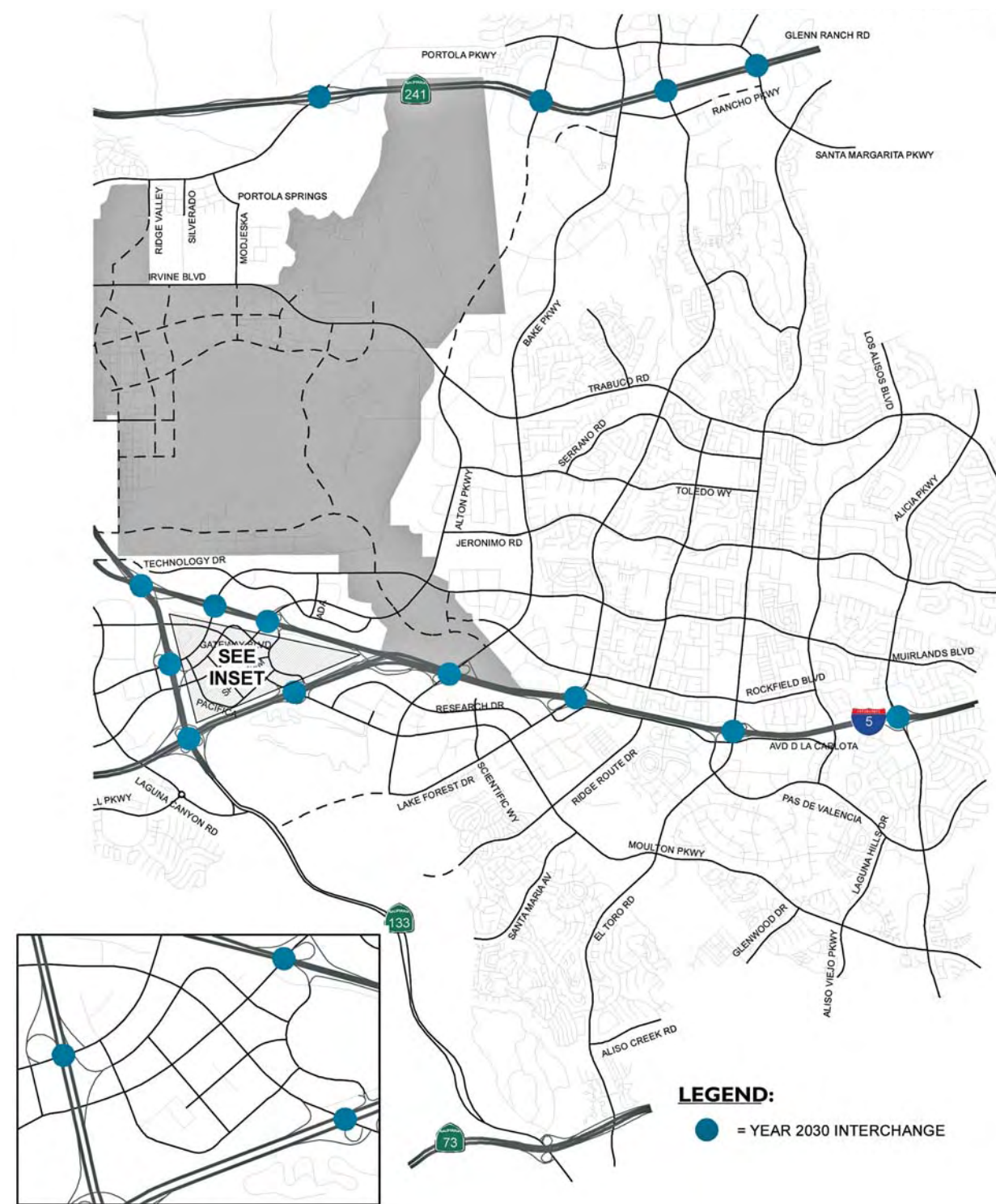
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Year 2030 Freeway Interchange Locations



West Study Area



East Study Area

LEGEND:

● = YEAR 2030 INTERCHANGE

0 6,000
Scale (Feet)



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Intersection Impact Locations (ICU Methodology)

For the 2030 Modified Project scenario, NITM fair share improvements address the Modified Project impacts for two of the three impacted intersections.

For Alton & Technology, include the NITM improvements, which restripe the east / west approaches and provide split phasing. The westbound approach should be restriped to include 2.5 left turn lanes, 1.5 through lanes, and a defacto right turn lane. The eastbound approach should be restriped to include 1.5 left turn lanes, 1.5 through lanes, and two right turn lanes with overlap phase.

At the intersection of El Toro / Jeronimo, various fair share NITM improvements have been identified. One of these improvements involves adding a second southbound left turn lane. Implementation of this partial NITM improvement is needed to serve cumulative 2030 conditions with the Modified Project. This improvement is a portion of the fair-share funded NITM improvements at this location.

For one additional intersection, Jeffrey / Roosevelt, restriping improvements to provide an eastbound shared thru/right-turn lane addresses the Modified Project impact. For additional alternatives for shared lane deployment, see Section 9-10 in the Traffic Study (Appendix M). Table 5.11-12 contains the analysis of the three impacted locations with the proposed mitigation:

*Table 5.11-12
Year 2030 Intersection ICU LOS With Modified Project
Project Impact Locations With Mitigation*

<i>Intersection</i>	<i>Peak Hour</i>	<i>2030 Without Modified Project</i>		<i>2030 Modified Project</i>		<i>With Improvement</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
286. Jeffrey & Roosevelt	AM	0.87	D	0.91	E	0.87	D
344. Alton & Technology	PM	0.93	E	0.95	E	0.86	D
420. El Toro & Jeronimo	AM	0.90	D	0.91	E	0.77	C

5.11.4.5 General Plan Buildout (Post-2030) Analysis

This section compares the Post-2030 Without Modified Project Scenario to the Post-2030 Modified Project. The baseline for this DSEIR is the Approved Project; this section presents a more conservative analysis because the density bonus units are not included in the Without Modified Project scenario even though they are a vested component of the Approved Project. As discussed previous, ITAM 8.4-10 and the LFTAM were used to prepare the Post-2030 Without Modified Project and Modified Project traffic forecasts. The results of the Post-2030 traffic impact analysis are summarized below, and then mitigation measures are presented for the locations on the study area circulation system that are impacted by the Modified Project under Post-2030 conditions.

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Post-2030 Traffic Impacts with Modified Project

The following sub-sections summarize the resulting Post-2030 Without Modified Project and Post-2030 Modified Project traffic conditions for the various components of the study area circulation system including arterial roads and intersections, freeway/tollway mainline segments and freeway/tollway ramps.

Post-2030 Circulation System and Average Daily Traffic Volumes

The Post-2030 Modified Project ADT volumes and corresponding V/C ratios are illustrated in Figures 5.11-20a and b, and Figures 5.11-21a and b, respectively.

Based on the ADT V/C performance criteria and impact thresholds discussed above, the following six (6) arterial roadway segments are potentially impacted by the Modified Project:

- Alton Pkwy (Enterprise to I-5 northbound ramps)
- Alton Pkwy (I-5 northbound ramps to Technology Dr West)
- Alton Pkwy (north of Commercentre)
- Bake Pkwy (north of I-5 northbound ramps)
- Jamboree Rd (south of Michelle Dr)
- Trabuco Rd (west of "O" St)

Consistent with City of Irvine traffic study guidelines, these locations are further analyzed by examining peak hour levels of service. The resulting midblock peak hour V/C ratios for the arterial segments under Post-2030 Modified Project conditions are summarized in Table 8-8 in the Traffic Study. As the summary table indicates, all arterial roadway segments are forecasted to operate at acceptable levels of service during the peak hour, therefore none of the arterial segments exceed adopted thresholds.

Post-2030 Peak Hour Intersection Levels of Service

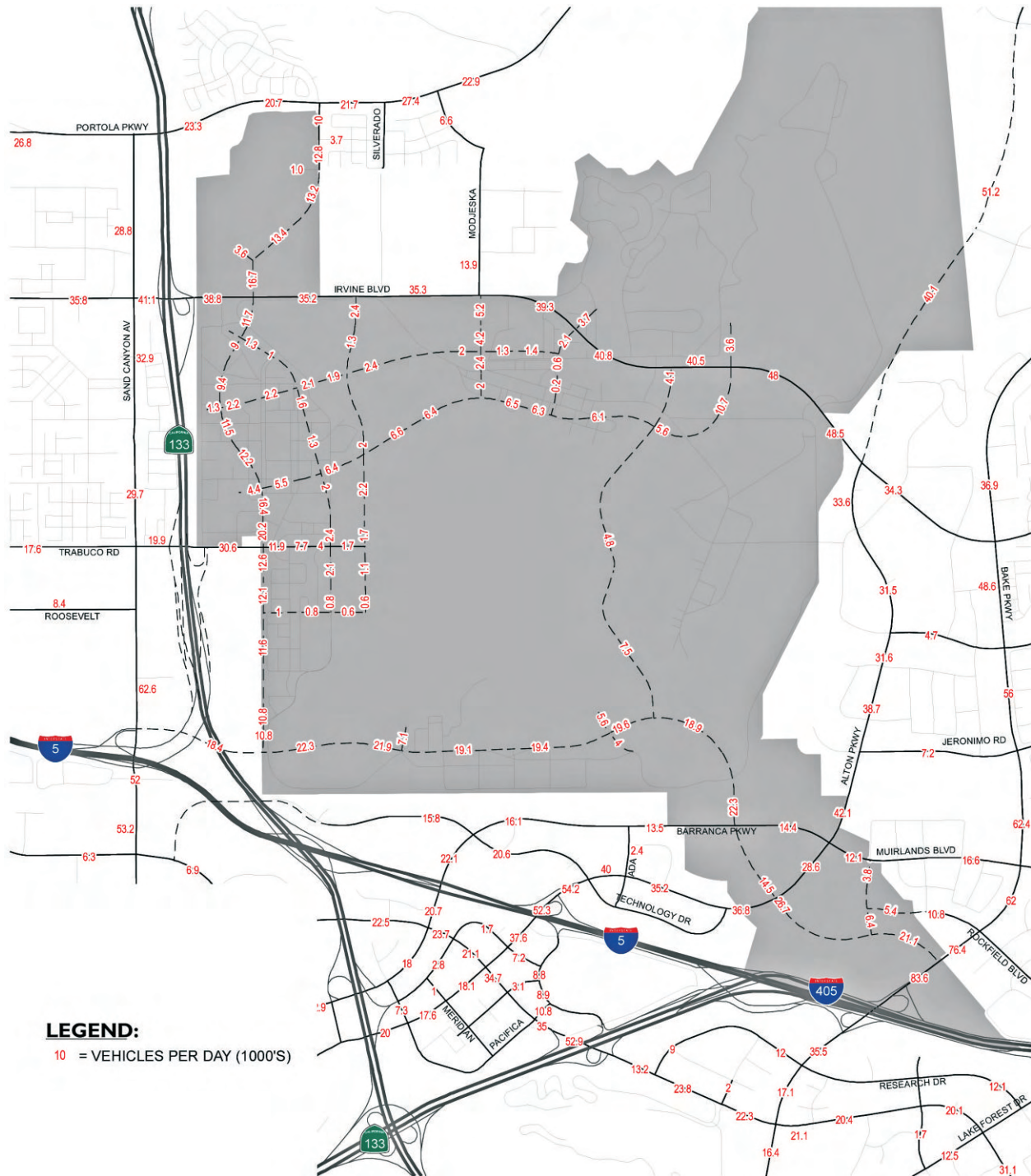
The Post-2030 Modified Project AM and PM peak hour ICU results for the intersections illustrated in Figure 5.11-22 that are part of the study area are summarized in Table 8-9 in the Traffic Study. Actual turning volumes, lane geometrics and ICU calculation worksheets for the Post-2030 Modified Project scenario are included in Appendix 8.5 to the Traffic Study. Based on the peak hour intersection performance criteria and impact thresholds, the intersections of Jeffrey Road & Roosevelt and Bake Parkway & Portola Parkway exceed adopted impact thresholds under the Modified Project scenario based on Post-2030 conditions (see Table 5.11-13).

Table 5.11-13
Post-2030 Intersection ICU LOS With Modified Project
Project Impact Locations

<i>Intersection</i>	<i>Peak Hour</i>	<i>Post 2030 Without Modified Project</i>		<i>Post-2030 Modified Project</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
286. Jeffrey & Roosevelt	AM	0.90	D	0.94	E
361. Bake & Portola	PM	0.93	E	0.95	E

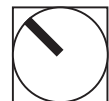
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Post-2030 ADT Volumes—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

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City of Irvine • **Figure 5.11-20a**

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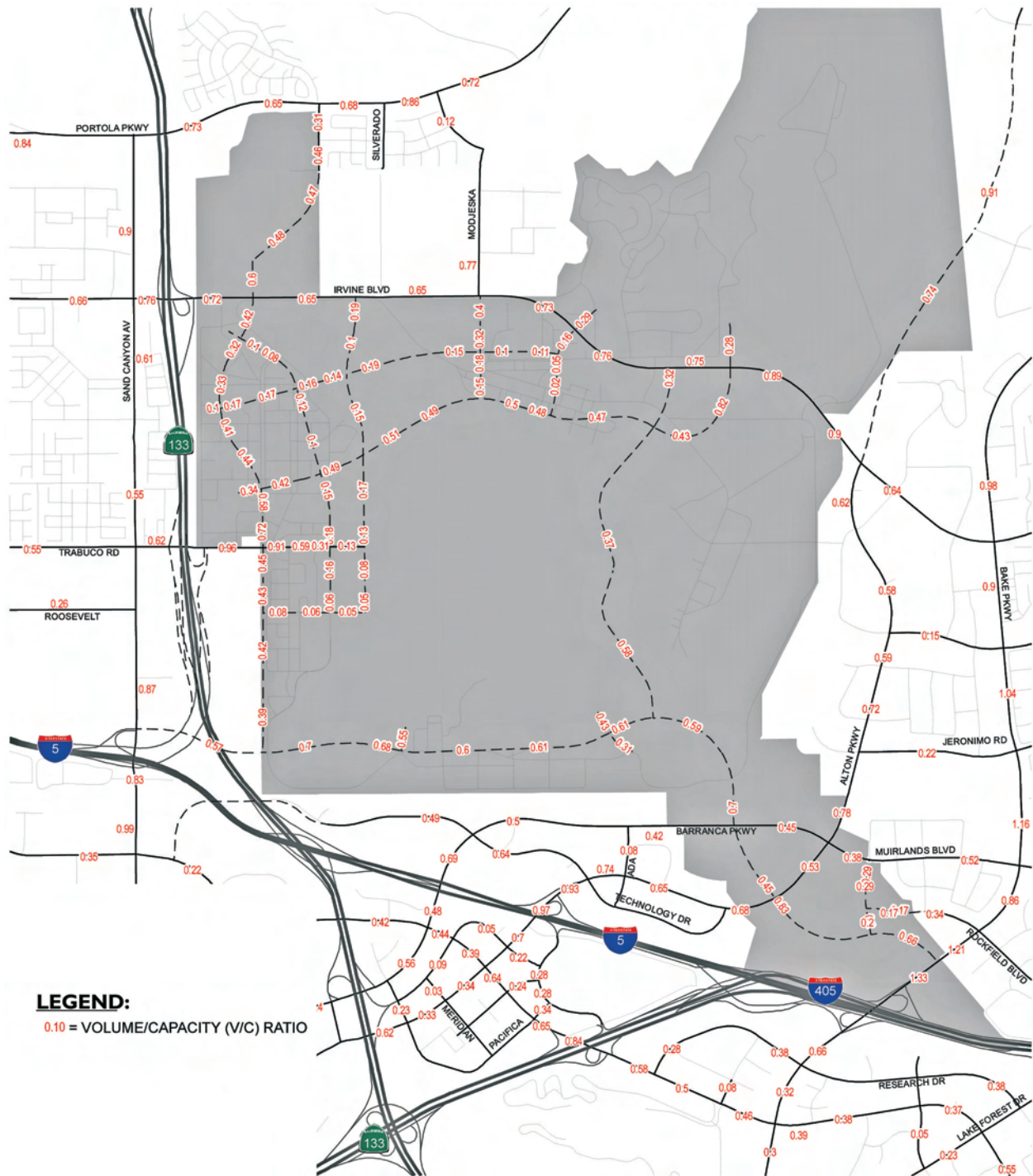
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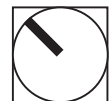
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Post-2030 ADT V/C Ratios—With Modified Project, With Density Bonus Units



Project Area

0 3,000
Scale (Feet)



Source: Urban Crossroads 2011

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City of Irvine • **Figure 5.11-21a**

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0 6,000
Scale (Feet)

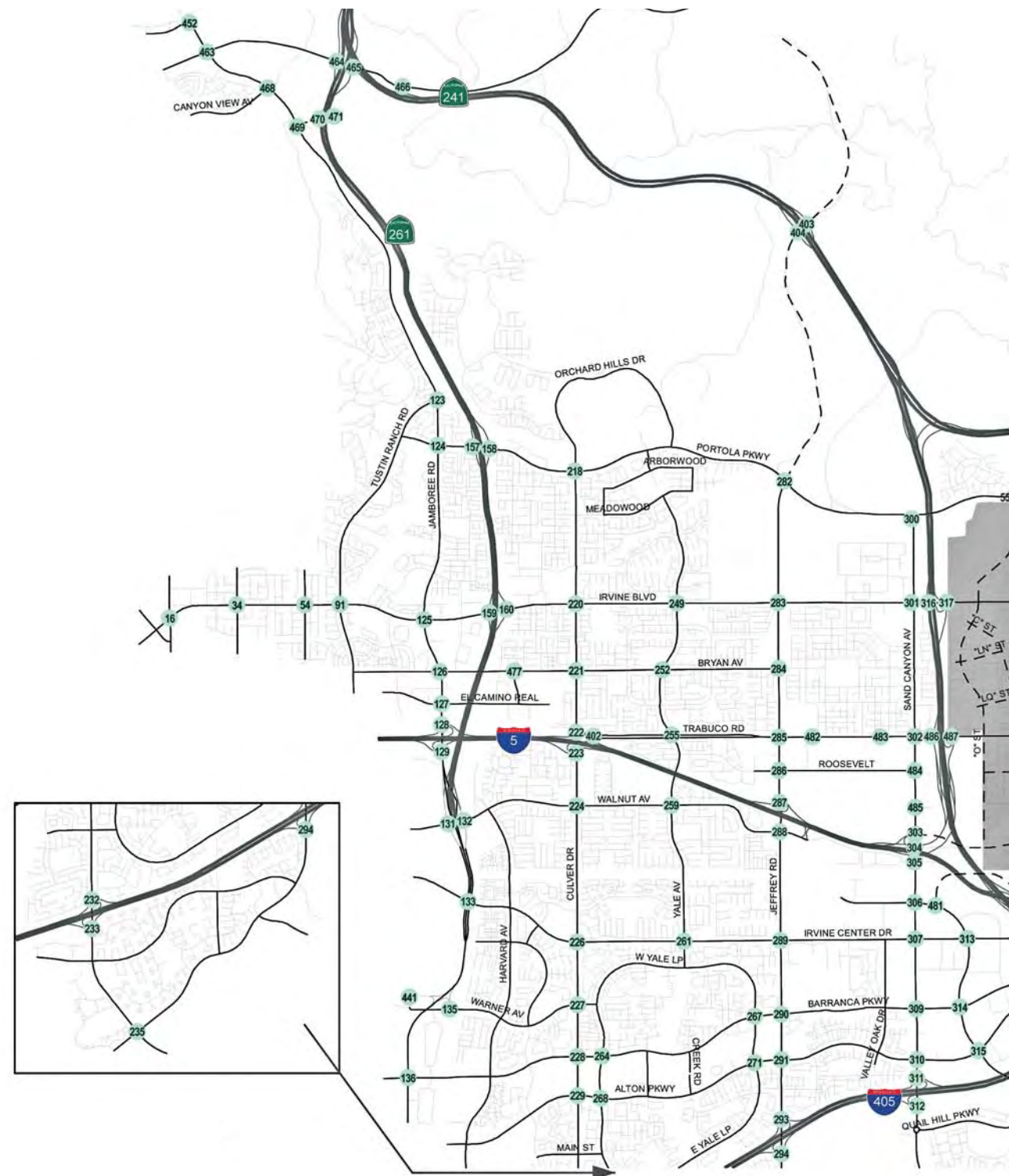


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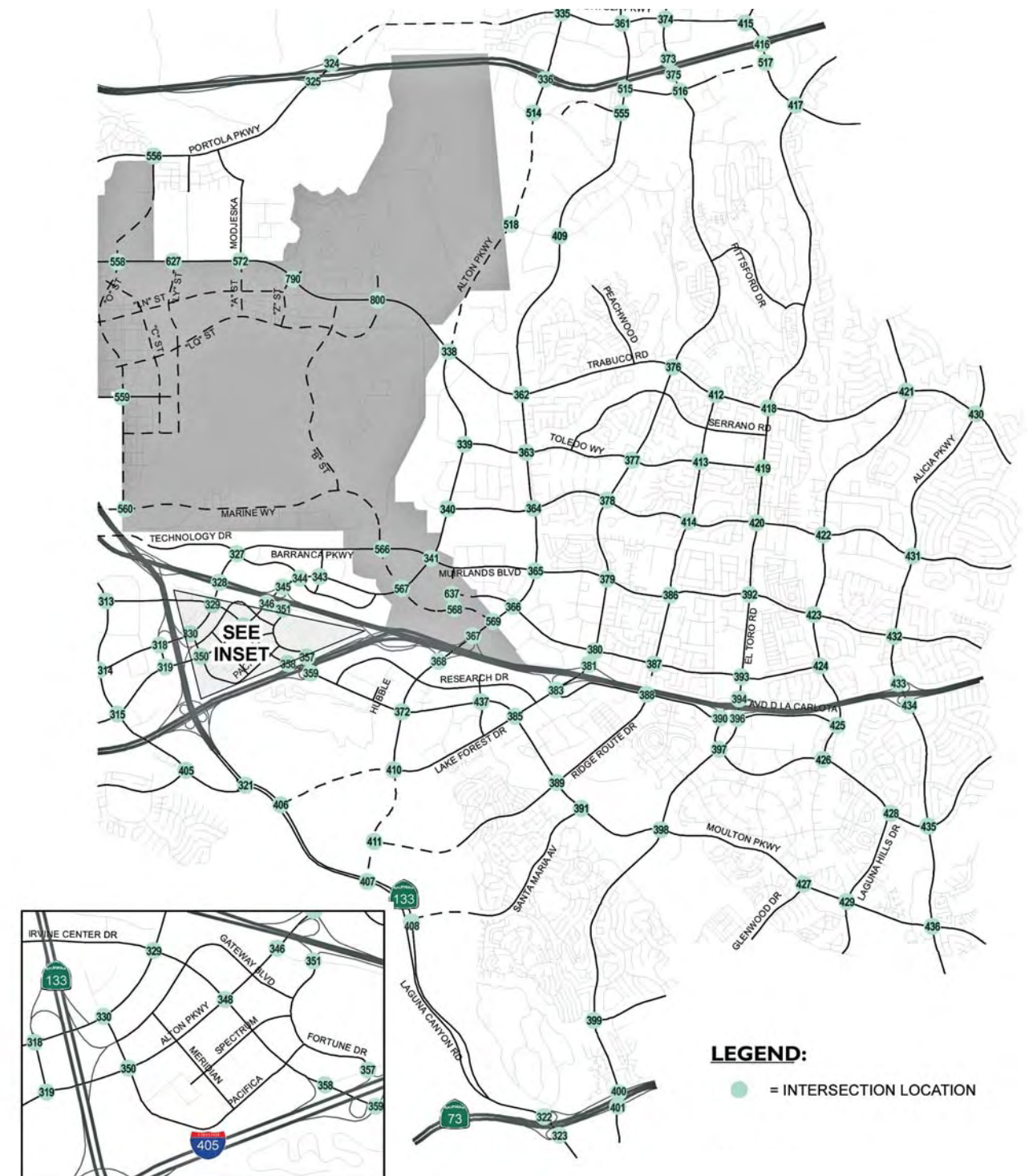
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Post-2030 Intersection Location Map



West Study Area



East Study Area

LEGEND:
● = INTERSECTION LOCATION

0 6,000
Scale (Feet)



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To address concerns expressed by Caltrans regarding the performance of freeway/tollway ramp intersections in the immediate vicinity of the Proposed Project Site, the freeway ramp intersections at Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road interchanges have been analyzed using both the HCM methodology and the ICU methodology. The resulting Post-2030 Without Modified Project and Modified Project peak hour levels of service based on the HCM methodology are summarized in Table 8-11 in the Traffic Study (HCM intersection LOS calculation worksheets are included in Appendix 8.6 to the Traffic Study). As shown in Table 8-11 in the Traffic Study, each of the ramp intersections is forecasted to operate at an acceptable LOS (i.e., LOS D or better), with the exception of Sand Canyon & I-5 northbound ramps in the AM peak hour for the Without Modified Project scenario.

In addition to the peak hour HCM ramp analysis, a queuing analysis was carried out for the Sand Canyon Avenue/I-5 ramps. For the off-ramps at the Sand Canyon/I-5 interchange, the potential for exiting traffic to back up onto the I-5 mainline was evaluated by performing a detailed queuing analysis. The HCM intersection LOS results presented earlier for the Sand Canyon Avenue/I-5, SR-133/Irvine Boulevard, and SR-133/Trabuco Road ramp intersections based on the HCM methodology provide estimates of the vehicle queue lengths on the off-ramp approaches at each intersection. Table 8-12 in the Traffic Study summarizes the longest 95th percentile queue length at each off-ramp under Post-2030 Modified Project peak hour conditions (HCM queuing analysis calculation worksheets are included in Appendix 8.7 to the Traffic Study). As the summary table indicates, none of the vehicle queue lengths exceed the physical length of the off-ramps, and therefore traffic exiting the I-5 at the Sand Canyon Avenue off-ramps is not expected to back up onto the I-5 mainline under Post-2030 Modified Project conditions. The on-ramps at the Sand Canyon Avenue/I-5 interchanges are metered with queue detectors installed, and the timing of the ramp meters will continue to be coordinated by Caltrans and the City of Irvine.

Post-2030 Peak Hour Freeway/Tollway Ramp Levels of Service

Figure 5.11-23 illustrates the interchange locations where freeway/tollway ramps were analyzed based on Post-2030 conditions. The Post-2030 Without Modified Project and Modified Project AM and PM peak hour ramp volumes and V/C ratios are summarized in Table 8-13 in the Traffic Study. The Modified Project scenario exceeds adopted impact thresholds at two freeway interchange off-ramps: the I-5 southbound ramp to Sand Canyon Avenue and the I-5 southbound ramp to Alton Parkway.

Post-2030 Peak Hour Freeway/Tollway Mainline Levels of Service

The Post-2030 Without Modified Project and Modified Project AM and PM freeway/tollway mainline peak hour volumes and V/C ratios are summarized in Table 8-14 in the Traffic Study. Based on the peak hour mainline performance criteria and impact thresholds discussed above, none of the freeway mainline segments are forecasted to exceed adopted impact thresholds under the Modified Project scenario in Post-2030 conditions.

Post-2030 Mitigation Measures

In this sub-section, mitigation measures are presented for the intersections identified as being impacted by the Modified Project based on Post-2030 conditions. It should again be noted that the City of Irvine has established NITM to implement and expedite circulation mitigation measures identified in previous certified CEQA documents. NITM provides a funding mechanism for the coordinated and phased installation of required traffic and transportation improvements established in connection with land use entitlements for City of Irvine Planning Areas 1, 5, 6, 8, 9, 30, 40 and 51. As established by City Ordinance No. 03-20, the Approved Project is included in this program and, as such, is required to pay its fair share toward the List of

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NITM Improvements included within the established NITM Program. If the Modified Project is approved, this NITM fee will be updated in accordance with the NITM Ordinance (TRAN 3).

In addition to the PA 30 and PA 51 NITM fair share fees addressed above, the following discusses the specific mitigation measures proposed for the Post-2030 impacts of the Modified Project identified above. The mitigation measures are designed to address the Modified Project's impacts by improving the LOS at each impacted location.

On the existing west leg of the Jeffrey Road / Roosevelt intersection, the eastbound approach should be restriped to provide a shared through / right turn lane. At the Bake Parkway/ Portola Parkway intersection, the northbound approach should be restriped to provide dual left turn lanes in combination with a single through lane and single right turn lane, and the traffic signal operation should be modified to include a northbound right turn overlap phase (identified as "Bake & Portola – Option 1" in Table 5.11-14). Alternatively, on the existing south leg of the Bake Parkway/ Portola Parkway intersection, the northbound approach should be restriped to provide a shared through /left turn lane (which currently exists as a through lane only) and the traffic signal should be modified for a north/south split phase signal operation (identified as "Bake & Portola – Option 2" in Table 5.11-14). These improvements are in addition to the Lake- Forest Transportation Mitigation (LFTM) Program improvement of a third westbound through lane, which will provide adequate receiving lanes for the shared northbound through / left turn lane. Table 5.11-14 contains the analysis of the intersections of Jeffrey Road / Roosevelt and Bake Parkway / Portola Parkway assuming implementation of the proposed mitigation:

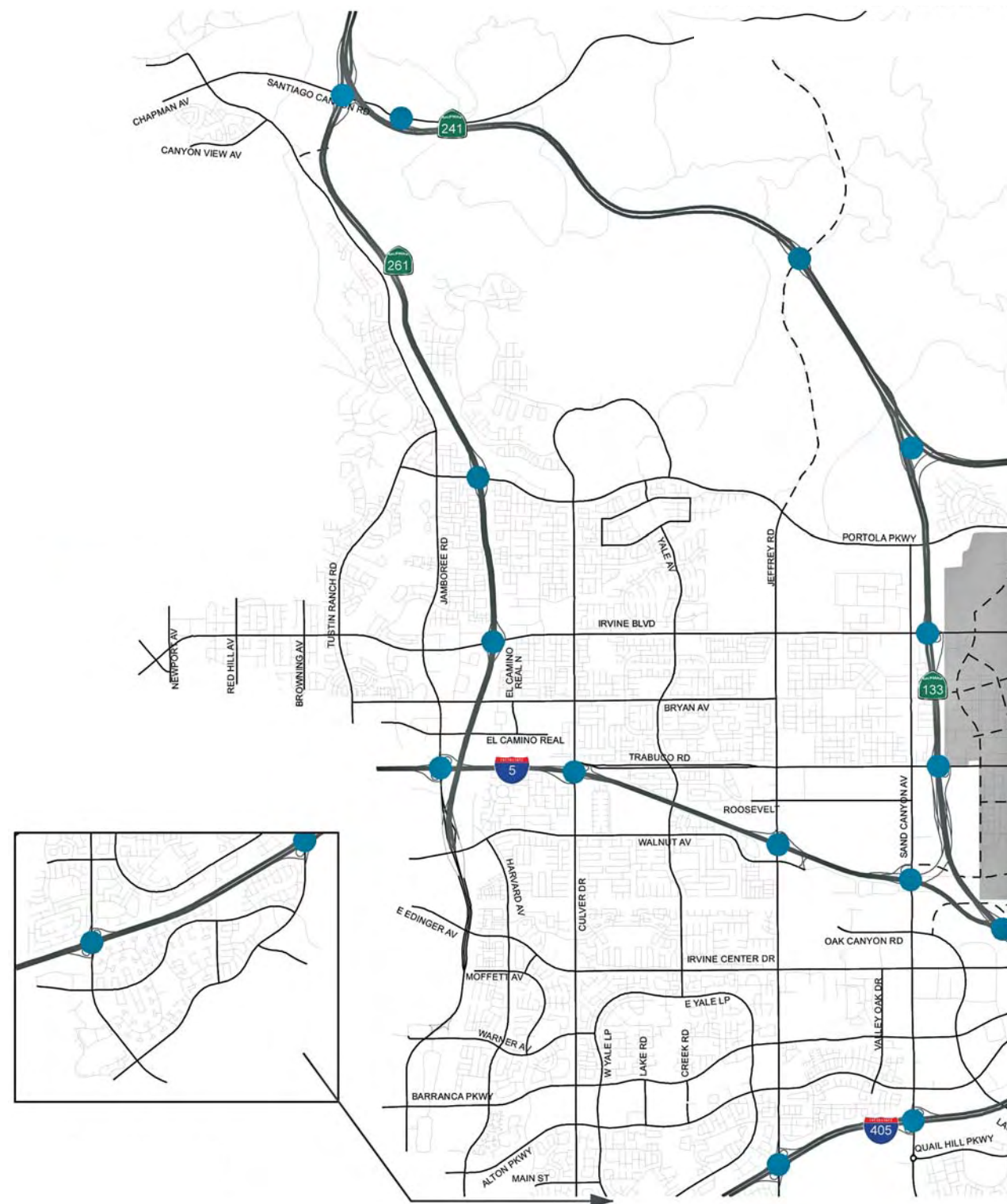
*Table 5.11-14
Post-2030 Intersection ICU LOS With Modified Project
Project Impact Location With Restriping / Signal Modification Mitigation*

<i>Intersection</i>	<i>Peak Hour</i>	<i>Post-2030 Without Modified Project</i>		<i>Post-2030 Modified Project</i>		<i>With Improvement</i>	
		<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>	<i>ICU</i>	<i>LOS</i>
286. Jeffrey & Roosevelt	AM	0.90	D	0.94	E	0.90	D
361. Bake & Portola – Option 1	PM	0.93	E	0.95	E	0.87	D
361. Bake & Portola – Option 2	PM	0.93	E	0.95	E	0.93	E

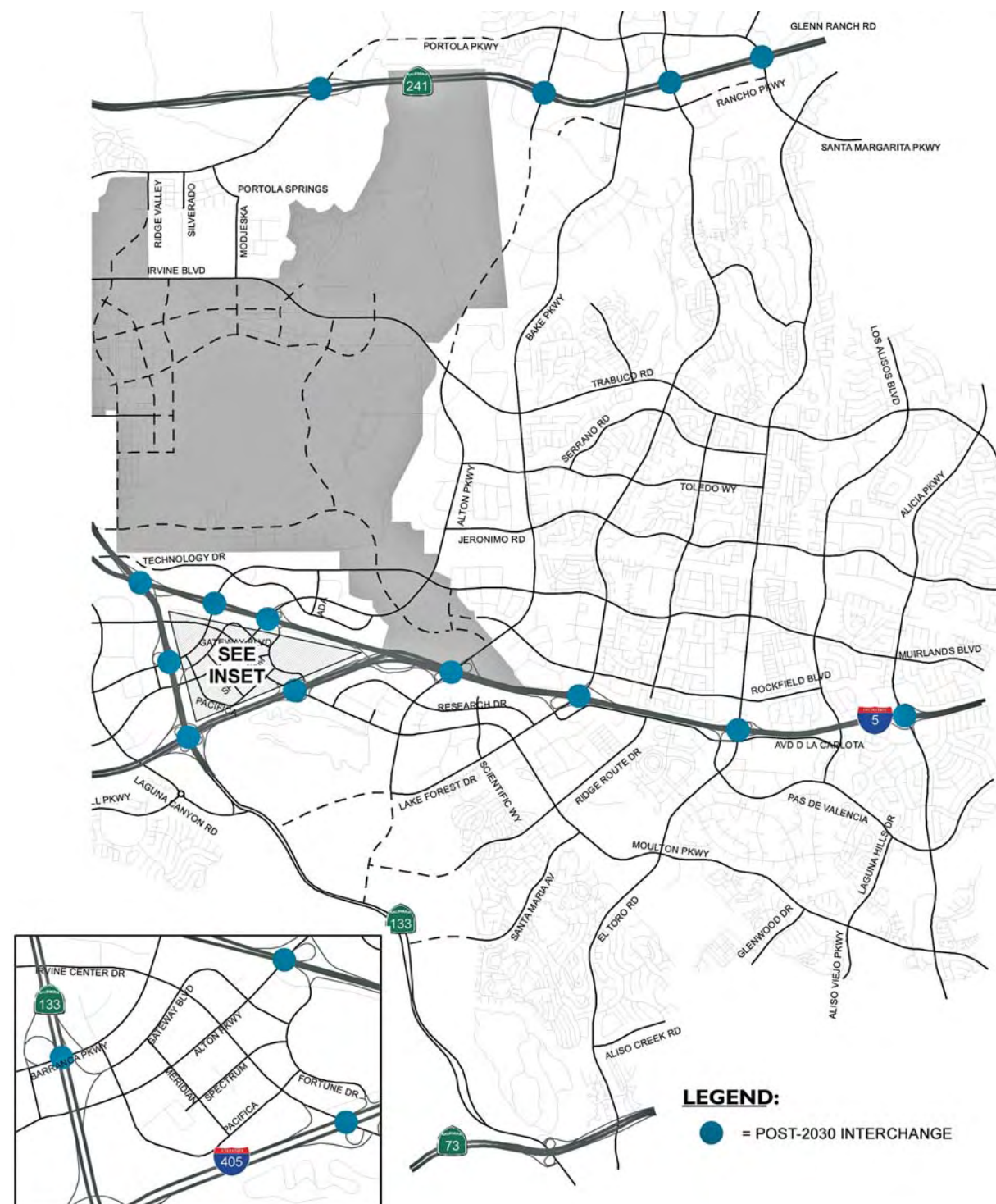
Ramp Impact Locations

As mentioned above, the Post-2030 Modified Project scenario exceeds adopted impact thresholds at two freeway interchange off-ramps: the I-5 southbound ramp to Sand Canyon Avenue and the I-5 southbound ramp to Alton Parkway. The proposed mitigation for these impacts is fair share funded NITM improvements.

Post-2030 Freeway Interchange Locations



West Study Area



East Study Area

0 6,000
Scale (Feet)



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An improvement that would serve to mitigate the Modified Project impact is to add second drop-lane from the I-5 to the off-ramp. Table 5.11-14 contains the analysis of the I-5 southbound off-ramp to Sand Canyon assuming implementation of such proposed mitigation:

<i>Table 5.11-15</i> <i>Post-2030 Peak Hour V/C Ratio With the Proposed Mitigation Measure</i> <i>for I-5 Southbound Off-Ramp at Sand Canyon</i>						
<i>Scenario</i>	<i>Peak Hour</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>Volume</i>	<i>V/C</i>	<i>LOS</i>
Without Modified Project	AM	1	1,500	1,754	1.17	F
Modified Project	AM	1	1,500	1,798	1.20	F
Modified Project with Mitigation	AM	2	2,250	1,798	0.80	C

An improvement that would serve to mitigate the impact at the I-5 southbound off-ramp at Alton is to add a second auxiliary lane from the I-5 to the off-ramp. Table 5.11-16 contains the analysis of the I-5 southbound off-ramp at Alton assuming implementation of such proposed mitigation:

<i>Table 5.11-16</i> <i>Post-2030 Peak Hour V/C Ratio With the Proposed Mitigation Measure</i> <i>for I-5 Southbound Off-Ramp at Alton Parkway</i>						
<i>Scenario</i>	<i>Peak Hour</i>	<i>Lanes</i>	<i>Peak Hour Capacity</i>	<i>Volume</i>	<i>V/C</i>	<i>LOS</i>
Without Modified Project	AM	2	2,250	2,188	0.97	E
Modified Project	AM	2	2,250	2,269	1.01	F
Modified Project with Mitigation	AM	2	3,000	2,269	0.76	C

5.11.4.6 Modified Project Internal Circulation

The performance of Modified Project backbone roadway segments and key intersections internal to the Modified Project and related to VTTM 17008 are examined in terms of Year 2015, Year 2030, and Post-2030 traffic projections, and recommendations are provided for lane geometry, left-turn storage requirements, right-turn channelization, and signalization to accommodate the overall Modified Project. The proposed design of on-site and access intersections is deemed to be adequate to accommodate the Modified Project. However, it is acknowledged that all recommendations for public streets are subject to concurrence and approval by the City Engineer.

Several on-site or Proposed Project Site access intersections warrant traffic signals for long range future conditions but do not need traffic signals based upon Year 2015 volume estimates. New traffic signals should be installed at the following five (5) intersections for cumulative 2015 conditions under the Modified Project scenario:

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- #558 Ridge Valley at Irvine Boulevard
- #559 "O" Street at Trabuco Road
- #560 "O" Street at Marine Way
- #627 "LY" Street at Irvine Boulevard
- #800 "A-02" Street at Irvine Boulevard

Modification of the existing Modjeska/Irvine Boulevard traffic signal will be required in conjunction with the connection of "A" Street. The existing Pusan Way/Irvine Boulevard traffic signal will need to be relocated to the intersection of "A-02" Street/"Z" Street at Irvine Boulevard.

Additional traffic signals should be installed at the following fourteen (14) intersections for cumulative 2030 and Post-2030 conditions under the Modified Project scenario:

- #592 Ridge Valley at "S" Street / Cienega
- #593 Ridge Valley at "II" Street
- # 603 "O" Street at "LN" Street
- # 608 "O" Street at "LV" Street
- # 563 "B" Street at Irvine Boulevard
- # 798 "B" Street at "LQ" Street
- # 799 "B" Street at Marine Way
- #562 Great Park Blvd-W at Marine Way
- #564 Great Park Blvd-E at Marine Way
- #567 Marine Way at Alton Pkwy
- #566 Marine Way at Barranca Pkwy
- #569 Bake Pkwy at Marine Way
- #637 Sterling at Muirlands Blvd
- #568 Sterling at Marine Way

Roundabouts are recommended at five (5) intersection locations for the purpose of providing either an efficient intersection treatment in place of a traditional traffic signal, or providing a low speed intersection feature at a key juncture of two backbone local collector or commuter roadways. The following three (3) roundabout locations satisfy warrants for a traffic signal in Post-2030 conditions:

- #557 "O" Street / "C" Street
- #595 Ridge Valley / "A" Street
- #605 "O" Street / "LQ" Street

At the intersection of #626 "LY" Street / "LQ" Street a roundabout is recommended to encourage a low speed environment on each of these straight two-lane roadways. At the intersection of #782 "A" Street / "LQ" Street a roundabout is recommended to encourage a low speed environment along "LQ" Street between District 1 North and District 5.

5.11.4.7 Special Issue: District 1 North and District 8 Land Uses

The Modified Project proposes two scenarios for Districts 1 North and 8 (the "District 1/8 Scenarios"). As described in Table 3-1, 15,000 square feet of church and 6,000 square feet of child care would be developed in either District 1 North or in District 8. If the 21,000 square feet of public facilities is located in District 1 North, then an additional 166 affordable apartments will be located in District 8. If the 15,000 square feet of

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church and 6,000 square feet of child care are located in District 8, then an additional 166 affordable apartments will be located in District 1 North. All other land uses within these Districts would remain unchanged and as studied within this DSEIR. Both scenarios were analyzed in the Traffic Study. Table 10-2 in the Traffic Study summarizes the off-site impacts associated with these scenarios.

The District 1/8 Scenarios do not increase overall project trip generation, and only require minor modifications to on-site network configurations. Therefore, the analysis in the Traffic Study and in this DSEIR focuses only on the study area intersections and arterial roadway segments. Based upon review of ramp intersection ICU changes, the District 1/8 Scenarios are not anticipated to impact freeway mainline segments or ramps in a different manner than for the remainder of the Modified Project discussed above.

Future conditions (2015, 2030 and Post-2030) are analyzed to determine if any level of service deficiencies are created within the study area with the potential exchange of church/child care and affordable apartments for the District 1/8 Scenarios. Although several arterial roadway segments exceed their theoretical daily capacity, they are projected to operate at acceptable levels of service during peak hours.

Year 2015 District 1/8 Scenarios

Year 2015 AM and PM peak hour ICU results indicate that intersection #432 at Alicia and Muirlands would exceed adopted impact thresholds under the District 1/8 Scenarios, as compared to the Modified Project. At this intersection, the same partial NITM improvement is recommended as mitigation for the District 1/8 Scenarios. This partial NITM improvement would consist of adding a second southbound left turn lane.

Year 2030 District 1/8 Scenarios

Year 2030 District 1/8 Scenarios AM and PM peak hour ICU results indicate that the same three intersections that would be impacted under the Year 2030 Modified Project scenario would be impacted under the District 1/8 Scenarios, including #344 - Alton & Technology, #420 - El Toro & Jeronimo, and #286 - Jeffrey / Roosevelt. For two of the intersections, the same NITM fair share improvements address the impacts associated with the District 1/8 Scenarios:

#344 - Alton & Technology, include the NITM improvements which restripe the east / west approaches and provide split phasing. The westbound approach should be restriped to include 2.5 left turn lanes, 1.5 through lanes, and a defacto right turn lane. The eastbound approach should be restriped to include 1.5 left turn lanes, 1.5 through lanes, and two right turn lanes with overlap phase.

#420 - El Toro & Jeronimo, include part of the fair share improvements previously identified in NITM for this location. Several fair share NITM improvements have been identified at this intersection. One of these improvements involves adding a second southbound left turn lane. Implementation of this partial NITM improvement is needed to serve cumulative Year 2030 conditions with the Project.

At the existing west leg of Intersection #286 - Jeffrey / Roosevelt, the same mitigation proposed for the Year 2030 Modified Project (restriping the eastbound approach to provide a shared through / right turn lane) is recommended for the District 1/8 Scenarios.

Year Post-2030 District 1/8 Scenarios

Post-2030 AM and PM peak hour ICU results indicate that the same two intersections that would be impacted under the Post-2030 Modified Project scenario (#286 - Jeffrey & Roosevelt and #361 - Bake & Portola) would exceed adopted impact thresholds under the District 1/8 Scenarios as well. On the existing west leg of

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the Jeffrey / Roosevelt intersection, restripe the eastbound approach to provide a shared through / right turn lane, consistent with the 2030 improvement recommendation. On the existing south leg of the Bake / Portola intersection, restripe the northbound approach to provide a shared through/left lane (which currently exists as a through lane) and modify the traffic signal for a north/south split phase signal operation. Alternatively, restripe the northbound approach to provide dual left turn lanes in combination with a single through lane and single right turn lane, and modify signal operation to include northbound right turn overlap phase. These improvements are in addition to the LFTM improvement of a third westbound through lane, which will provide adequate receiving lanes for the shared northbound through /left turn lane.

IMPACT 5.11-2: THE MODIFIED PROJECT COMPLIES WITH ADOPTED POLICIES, PLANS, AND PROGRAMS FOR ALTERNATIVE TRANSPORTATION. [IMPACT T-6]

Impact Analysis: Various Class 1 (Off-Street) and Class 2 (On-Street) bikeways through the Proposed Project Site have been anticipated in the City of Irvine General Plan Trails Network. The Modified Project's proposed General Plan Amendment and Zone Change expands opportunities for bikeway and pedestrian facilities by providing a continuous secondary arterial connection along "O" Street / Ridge Valley from Marine Way to Portola Parkway, and a direct north-south commuter roadway connection along "B" Street from Irvine Boulevard to Marine Way near the Irvine Station.

Within the Proposed Project Site, goals of the City's General Plan for effective non-motorized transportation are accomplished through enhanced local street connectivity, an extensive network of walkways and bikeways, and the arrangement of land uses for access by various modes of transportation. Additionally, transit services for the Proposed Project Site are identified at a concept level in order to determine potential transit stop locations and ensure that physical site planning for the project districts will accommodate appropriate pedestrian connectivity to the stop locations. The conceptual routes are comparable to the network presented in the recommended in the City-wide Irvine Transit Vision report. Any impacts concerning alternative transportation programs are considered less than significant.

5.11.5 Cumulative Impacts

The geographic scope for traffic includes cumulative growth projections for Orange County that are reflected in Orange County Projections ("OCP")-2004, as modified by more recent data as described in Section 4.5, *Cumulative Impact Assumptions*, of this DSEIR. Past projects in Orange County cities and unincorporated areas have converted undeveloped and agricultural land to urban uses resulting in area residential and employment population increases and associated demand for expansions of roadway systems. The contribution of these past projects to area growth is also reflected in OCP-2006. As described in Section 5.8, *Population and Housing*, the Orange County Projections are prepared, and periodically updated, by the Center for Demographic Research at California State University, Fullerton, based on a Memorandum of Understanding with the Orange County Council of Governments (OCCOG). General Plan information from each jurisdiction within Orange County is used in the development of growth projections for the County. The OCP growth projections, as adopted by the OCCOG, are then incorporated into traffic models approved for use by the Orange County Transportation Authority (i.e., the Orange County Transportation Analysis Model - OCTAM), which provides the countywide traffic model basis for more localized traffic models, such as that used by the City of Irvine (i.e., the Irvine Transportation Analysis Model - ITAM). As such, the traffic modeling for future conditions includes areawide growth as anticipated in adopted growth projections (e.g., OCP-2004).

Because the modeling used for the traffic analyses contained in this Section 5.11, *Transportation and Traffic*, incorporates OCGP-2004 projections, the analyses assess the traffic impacts of all cumulative development

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reasonably anticipated by Year 2015, Year 2030 and Post-2030. As discussed above, most intersections and roadway/freeway/tollway/ramp segments will operate at acceptable levels of service with the existing or planned improvements, although some may require additional improvements, as described in Section 5.11.7, Mitigation Measures. It should be noted, however, that it has been anticipated in the traffic analysis that the cumulative impact of Modified Project traffic along with other regional growth at the identified ramp and freeway locations will be largely mitigated through a combination of regional programs that are the responsibility of other agencies such as Lake Forest and CalTrans. The Applicant will contribute its fair share to these regional programs, as applicable. However, if these programs are not implemented by the agencies with the responsibility to do so, the cumulative freeway/tollway ramp impacts would remain significant and unavoidable. Under these circumstances, the Modified Project could result in a cumulatively significant traffic impact that may remain significant and unavoidable.

Pending (Not-Approved Projects)

As discussed above, the cumulative impacts analysis completed for the Modified Project evaluates future traffic conditions based on the growth and development assumptions incorporated into adopted growth forecasts. This approach is consistent with the provisions of CEQA Guidelines Section 15130(b)(1)(B). For information purposes, the Traffic Study also included a sensitivity analysis evaluating future traffic conditions with the addition of other pending (not-approved) development projects and changes to the Master Plan of Arterial Highways that are not accounted for in the currently adopted growth projections.

Thus, three future “pending” scenarios (2015, 2030, and Post 2030 With Modified Project) are analyzed to determine if any additional level of service deficiencies are created within the study area with pending development projects and changes to the Master Plan of Arterial Highways. Pending Projects With Modified Project (referred to as "Pending Projects w/ GPA/ZC" in the Traffic Study) scenarios are compared against Pending Projects Without Modified Project (referred to as "Pending Projects w/out GPA/ZC w/DB" in the Traffic Study) so that any deficiencies on the study area circulation system can be identified.

2015 Pending Projects Analysis

Year 2015 Pending Projects With Modified Project AM and PM peak hour intersection capacity utilization (ICU) results indicate that no arterial links, intersections, mainline freeway segments or ramps that exceed adopted impact thresholds with the Year 2015 Pending Projects With Modified Project scenario, as set forth in Tables 9-36, 9-37, and 9-38 of the Traffic Study.

2030 Pending Projects Analysis

Although several arterial roadway segments exceed their theoretical daily capacity, for Year 2030 Pending Project With Modified Project, they are projected to operate at acceptable levels of service during peak hours, as set forth in Table 9-39 of the Traffic Study.

Year 2030 AM and PM peak hour intersection capacity utilization (ICU) results indicate that two intersections exceed adopted impact thresholds under the Pending Projects With Modified Project scenario, as set forth in Tables 9-40 and 9-41 of the Traffic Study. At the existing west leg of Intersection #286 - Jeffrey / Roosevelt, restriping of the eastbound approach to provide a shared through / right turn lane is recommended. On the existing south leg of intersection #374 - Lake Forest / Portola Parkway, the Pending Projects With Modified Project scenario requires a conversion of the northbound approach from de-facto right-turn to a dedicated right-turn, and modification of the traffic signal to include right turn overlap phase.

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The Pending Projects With Modified Project scenario exceeds adopted impact thresholds for 2030 conditions at one freeway interchange ramp: I-5 Southbound off-ramp to El Toro Road, as set forth in Table 9-45 of the Traffic Study. This ramp is a fair-share funded NITM improvement location, so no additional mitigation would be required.

The improvement at the I-5 Southbound off-ramp to El Toro consists of adding a second drop lane from the I-5 to the off-ramp. This is consistent with the Five-Year Review list of fair share funded improvements in the NITM program, so additional mitigation is not required.

Although several mainline freeway segments are projected to operate at LOS F during peak hours, the Year 2030 Pending Projects With Modified Project scenario does not cause traffic to increase by more than the adopted threshold amount of .03, as set forth in Table 4-43 of the Traffic Study, and therefore the impact is not significant.

Post 2030 Pending Projects Analysis

Although several arterial roadway segments would exceed their theoretical daily capacity under Post-2030 Pending Projects With Modified Project scenario, all arterial roadway segments are projected to operate at acceptable levels of service during peak hours, as set forth in Table 9-46 of the Traffic Study.

Post-2030 AM and PM peak hour intersection capacity utilization ICU results for the Pending Projects With Modified Project scenario indicate that two intersections (#286 - Jeffrey & Roosevelt, and #361 - Bake & Portola Parkway) would exceed adopted impact thresholds, as set forth in Table 9-48 of the Traffic Study. At each intersection, the same restriping mitigation improvements as identified for the Modified Project Post-2030 scenario are recommended as mitigation. On the existing west leg of the Jeffrey Road / Roosevelt intersection, the eastbound approach should be restriped to provide a shared through / right turn lane. The northbound approach should be restriped to provide dual left turn lanes in combination with a single through lane and single right turn lane, and the traffic signal operation should be modified to include a northbound right turn overlap phase (identified as “Bake & Portola – Option 1” in Table 5.11-14). Alternatively, on the existing south leg of the Bake Parkway / Portola Parkway intersection, the northbound approach should be restriped to provide a shared through / left turn lane (which currently exists as a through lane only) and the traffic signal should be modified to provide a north/south split phase signal operation (identified as “Bake & Portola – Option 2” in Table 5.11-14). These improvements are in addition to the LFTM improvement of a third westbound through lane, which will provide adequate receiving lanes for the shared northbound through / left turn lane.

Post-2030 freeway/tollway ramp results for the Pending Projects With Modified Project scenario indicate that the same ramp as identified for the Modified Project Post-2030 scenario (I-5 southbound off-ramp at Sand Canyon) exceeds adopted impact thresholds, as set forth in Table 9-49 of the Traffic Study. At this intersection, the same fair share funded NITM Program improvements would be recommended as mitigation, namely the addition of a second drop-lane from the I-5 to the off-ramp.

Although several mainline freeway segments are projected to operate at LOS F during peak hours, the Post-2030 Pending Projects With Modified Project scenario would not cause traffic to increase by more than the adopted threshold amount of .03, and therefore the impact is considered less than significant, as set forth in Table 9-50 of the Traffic Study.

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5.11.6 Level of Significance Before Mitigation

Table 5.11-17 sets forth the locations that would have significant traffic impacts without mitigation in the Modified Project scenario for the Year 2015, Year 2030 and/or Post-2030.

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: Impact 5.11-2.

Without mitigation, the following impacts would be **significant**:

- **Impact 5.11-1** Project generated traffic would result in significant impacts at a number of intersections in the Year 2015, Year 2030 and Post-2030 conditions.

*Table 5.11-17
Locations of Significant Impacts of Modified Project Before Mitigation*

<i>Location</i>	<i>Modified Project</i>		
	<i>2015</i>	<i>2030</i>	<i>Post 2030</i>
286 Jeffrey & Roosevelt		X	X
344 Alton & Technology		X	
361 Bake & Portola			X
420 El Toro & Jeronimo		X	
432 Alicia & Muirlands	X		
I-5 SB off-ramp to Sand Canyon			X
I-5 SB off-ram to Alton			X

5.11.7 Mitigation Measures

Applicable Mitigation Measures from the Certified EIR

Each mitigation measure specified in the Certified EIR is set forth below. This DSEIR proposes that mitigation measures TRAN2, TRAN3, TRAN4, TRAN5, TRAN6, and TRAN7 from the Certified EIR be eliminated and replaced with mitigation measures specific to the Modified Project's impacts. In addition, the language of TRAN8 from the Certified EIR is proposed to be modified as indicated below. An accompanying explanation for each modification/deletion is set forth immediately following the relevant Certified EIR mitigation measure. Modifications to the original mitigation measures are identified in ~~strikeout text~~ to indicate deletions and underlined to signify additions. The remaining Mitigation Measures are the same for the Modified Project as for the Approved Project.

- TRAN 1 Prior to the approval of any final map (other than a financing and conveyance map) allocating building intensity within Planning Areas 30 and 51, and prior to issuances of any building permits for permanent improvements within Planning Areas 30 and 51, the landowner or subsequent project applicant shall either (i) apply for annexation of any areas within the final map to the Irvine Spectrum Transportation Management Association (TMA) ("Spectrumotion") in accordance with Article X of the recorded Declaration of Covenants, Conditions and

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Restrictions (CC&Rs) for the Irvine Spectrum TMA, including any supplementary or amended CC&Rs, to reduce traffic, air quality and noise impacts or (ii) develop and implement a similar transportation management plan containing the elements and meeting the criteria described below as approved by the Director of Public Works:

Transportation Management Plan (TMP)

The development and implementation of a Transportation Management Plan is an identified mitigation measure to manage transportation access for Planning Areas 30 and 51. This document summarizes the key elements of the TMP.

A. Introduction

The purpose of this document is to provide an outline for a comprehensive TMP for the Planning Areas 30 and 51 (“Great Park TMP”). This report is not intended to provide the specific details of the plan, but rather to highlight the key components and provide direction for subsequent detailed planning and implementation activities. When preparation of the TMP is undertaken, all of the agency and stakeholders will be invited to provide input.

The applicant may elect to annex Planning Area 51 and a portion of Planning Area 30 into the Irvine Spectrum Transportation Management Association (Spectrumotion). Spectrumotion is a private, non-profit Transportation Management Association (TMA) formed to reduce traffic congestion in Irvine Spectrum. Spectrumotion promotes, markets, and subsidizes alternatives to solo-commuting and assists the business community in complying with trip reduction related requirements. Membership is mandatory to property owners with deed restrictions requiring participation in the TMA. Membership dues provide the funding for the Association and its programs, which offer a variety of employer and commuter services focused on reducing vehicular trip generation.

In the event that the applicant elects not to annex into Spectrumotion, a TMP similar to that provided by Spectrumotion will be developed and implemented. This document sets forth the components of the TMP should it be necessary.

B. Transportation Management Plan Framework

The key elements of the Great Park TMP are set forth below:

New Hire Orientation: Inform newly hired employees of commuting services available to them.

Public Transportation Pass Sales: Provide a central location for purchase of passes to available transit services ((i.e., OCTA buses, Metrolink, Amtrak, etc.).

Vanpool and Carpool Formation Assistance: Perform all of the administrative work necessary to establish van pools and car pools.

On-site Promotions: Hold rideshare promotions at work sites and assist in employer assistance promotions.

Telecommuting/Alternative Work Schedule Consulting: Assist employers in developing and implementing a telecommuting or alternative work schedule program.

Personalized Commute Consulting: Provide a personalized commute profile to any commuter, which includes carpool match list containing the names of other commuters in the North Irvine Sphere that live and work near each other.

Website: Maintain a website with all of their program information available.

Rideshare Promotions: Conduct high visibility rideshare promotions as a means to advertise its services.

Subsidies: To the extent financially feasible, offer subsidies to assist in the formation of vanpools, the formation of carpools, and to encourage the trying of transit services.

Public Agency Coordination: Work closely with various public and quasi-public agencies to improve bus and commuter rail service to the Spectrum and North Irvine Sphere areas.

C. Transportation Management Plan Implementation

As part of the TMP, a process will be established to monitor its effectiveness in reducing peak hour trip generation in the Planning Areas 30 and 51. Provision shall be made for the Plan to be modified as appropriate to enhance its effectiveness.

~~TRAN2 — Prior to the issuance of the first building permit, City shall establish, and the landowner or subsequent project applicant shall commit to participate in, a transportation system/infrastructure fee program to fund improvements identified as mitigation measures listed in Tables 5.2-16 and 5.2-17 of the OCGP FEIR.~~

Section 6.1 of the ARDA requires Heritage Fields and the City to implement the NITM Program. Further, additional mitigation measures are proposed to address the specific impacts of the Modified Project that were identified in the Traffic Study. Accordingly, TRAN 2 is no longer necessary.

~~TRAN3 — Prior to issuance of any building permits for permanent improvements within Planning Areas 30 and 51, the landowner or subsequent project applicant shall implement or contribute its percentage funding responsibility for traffic improvements as identified in the NITM Ordinance.~~

As discussed above, the ARDA requires the landowner or subsequent property owner to participate in the NITM Program. As such, the Applicant's obligation to participate in the NITM Program satisfies mitigation measure TRAN3, making it no longer necessary for the Modified Project.

~~TRAN4 — Prior to approval of each Tentative Map or Master Plan that allocates intensity for numbered lots, the landowner or subsequent project applicant shall prepare, subject to City review and approval, an updated traffic study consistent with the City of Irvine Traffic Study Guidelines inclusive of a phasing plan for traffic improvements associated with the subject Tentative Map or Master Plan that allocates intensity for numbered lots. The traffic study area shall be the same as the study area utilized in the NITM Nexus Study. The phasing plan will specify the timing, funding, construction, and responsibilities for all traffic improvements identified in the updated traffic~~

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~~study. The updated traffic study will determine whether any additional or alternative traffic improvements are necessary based on updated traffic forecasts. The updated traffic study will evaluate at a minimum the cumulative impact of the subject map and/or Master Plans that allocates intensity and all previously approved or concurrently submitted maps and/or Master Plans. The methodology for the study area, applicable land use and circulation modifications, and standards for assessing and mitigating impacts employed in the updated traffic study shall be consistent with a City approved traffic study scope of work. The landowner or subsequent project applicant shall construct or bond for and enter into a funding agreement for necessary improvements identified in the updated traffic study and/or participate in the City fee program (OCGP FEIR Mitigation Measure TRAN2) to the extent that the improvements identified in the updated traffic study are listed in Tables 5.2-16 and 5.2-17 of the OCGP FEIR. Traffic signals that are on-site or directly related to the development in Planning Areas 30 and 51 will be installed as warranted through the mitigation implementation plan process.~~

As set forth in Irvine Code Sections 6-3-701 6-3-702, and the NITM Scopes of Work, participants in the NITM Program are required to submit a TPM/TTM traffic study for City approval prior to approval of any tentative map or master plan that allocates intensity for future development. The content of that study is specifically laid out in the NITM Scopes of Work, and is substantially similar to that of TRAN4. To the extent that it differs, the NITM Program would govern, per Irvine Code Section 6-3-701. As such, the Applicant's obligation to participate in the NITM Program satisfies mitigation measure TRAN4, making it no longer necessary for the Modified Project.

~~TRAN5—In conjunction with the preparation of any updated traffic study as required in Mitigation Measure Tran 4 for each master tentative map or equivalent, and assuming that a regional transportation agency has not already programmed and funded the warranted improvements to the impacted freeway mainline or freeway/toll way ramp locations in conjunctions with fulfilling its regional role, that landowner or subsequent project applicant and the City will take the following actions:~~

- ~~1. The City shall ensure that the updated traffic study identifies the project's proportionate impact on the specific freeway mainline and/or freeway toll way ramp locations and its percentage responsibility for mitigating these impacts (assuming tolled conditions on the Transportation Corridors) based on thresholds of significance, performance standards and methodologies used in the OCGP FEIR and established in the Orange County Congestion Management Program and City of Irvine Traffic Study Guidelines.~~
- ~~2. The City shall estimate the cost of the project's percentage responsibility in cooperation with Caltrans and the Transportation Corridor Agency.~~
- ~~3. The landowner or subsequent project applicant shall enter into an agreement with the City prior to recordation of the first final map for each Master Tentative map or equivalent to establish the method and timing of payment of the identified percentage responsibility.~~
- ~~4. The City shall allocate landowner or subsequent project applicant's percentage contribution to traffic improvements that result in improved traffic flow on the impacted mainline and ramp locations, including but not limited to construction of physical or operational improvements, contributions to mandated trip reduction or transit programs, or funding participation in a regional transportation improvement fee program, if adopted.~~

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As discussed above, Irvine Code Sections 6-3-701 6-3-702, and the NITM Scopes of Work, participants in the NITM Program are required to submit a TPM/TTM traffic study for City approval prior to approval of any tentative map or master plan that allocates intensity for future development. In accordance with the NITM Scopes of Work, those studies would analyze the proportionate impact on the specific freeway mainline and/or freeway-toll way ramp locations and the Applicant's percentage responsibility for mitigating these impacts. Moreover, Irvine Code Section 6-3-705 sets forth the provisions for payment of total future development area NITM fees at time of issuance of first building permit or commencement of construction and governs agreements between the City and the Applicant regarding such payment. As such, the Applicant's obligation to participate in the NITM Program satisfies mitigation measure TRAN5, making it no longer necessary for the Modified Project.

~~TRAN6 The project shall mitigate to insignificant levels all project impacts at significantly impacted study area intersections. Tables 5.2-16 and 5.2-17 in the OCGP FEIR show the mitigation program for each phase. With regard to impacts that require improvements in other jurisdictions, the City of Irvine shall cooperate with the affected jurisdiction to ensure that the improvements are constructed in a timely manner.~~

Section 6.1 of the ARDA requires Heritage Fields and the City to implement the NITM Program. Further, additional mitigation measures are proposed to address the specific impacts of the Modified Project that were identified in the Traffic Study. Accordingly, TRAN 6 is no longer necessary.

~~TRAN7 Assuming that a regional transportation agency has not already programmed and funded the improvements, the City of Irvine shall coordinate with Caltrans and the Transportation Corridor Agencies, and submit for their approval proposed plans for modifications to the state highway system and the transportation corridors, as required to provide ramp connections to Trabuco Road. If needed, the City shall prepare a Project Study Report, a new Connection Request, and a Detailed Traffic Revenue Study for review by Caltrans and the Transportation Corridor Agency for the proposed connection of Trabuco Road to the Eastern Transportation Corridor. The City shall perform toll and revenue impact studies for any mitigation measure (improvement) that may be impacted by the non-complete clause or any similar agreement restricting a public agency's authority to construct improvement.~~

The City has prepared and submitted to CalTrans a Project Study Report which includes an analysis of the proposed connection of the Trabuco Road to the Eastern Transportation Corridor. In keeping with requirements of NITM, the City will continue to work with regional transportation agencies related to required improvements.

TRAN-82 Following adoption of a land use plan and circulation plan for the Great Park property and before the issuance of any building permits within the base property, the City of Irvine shall ~~enter into request~~ a cooperative study with OCTA and other affected jurisdictions to amend the Orange County Master Plan of Arterial Highways (MPAH). Marine Way, Trabuco Road from the SR-133 toll way to "O" Street (formerly College Road), and Ridge Valley (formerly "Y" Street) should be included on the MPAH.

The proposed modifications update the street names, which have been changed.

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Additional Mitigation Measures for the Modified Project

The following additional mitigation measures would, if fulfilled, eliminate or substantially reduce the traffic and circulation effects of the Modified Project.

- TRAN3 Prior to issuance of the first building permit for dwelling units or non-residential square footage, a Fee Reallocation Study shall be completed to recalculate the NITM Fees reflecting any fair share allocation modifications. The landowner or subsequent property owner shall submit the Fee Reallocation Study under a separate cover to be approved by the Director of Public Works, in consultation with the NITM Advisory Committee.
- TRAN4 Prior to approval of the last final map for the Modified Project (or any portion thereof in the event that the final map is approved in multiple phases), the landowner or subsequent property owner shall pay its fair share of the costs of the following mitigation in an amount to be mutually agreed upon between the landowner or subsequent property owner and the City and reflective of the costs of the mitigation at the time of payment:
- 286 Jeffrey Road & Roosevelt: Restripe the existing eastbound approach to provide a shared through/ right turn lane within the existing right-of-way.
 - 361 Bake Parkway & Portola Parkway: Restripe the existing northbound approach to provide a shared through/left lane (which currently exists as a through lane) within the existing right-of-way and modify the existing traffic signal operation for a north/south split phase signal operation. Alternatively, restripe the existing northbound approach to provide dual left turn lanes in combination with a single through lane and single right turn lane within the existing right-of-way, and modify signal operation to include northbound right turn overlap phase.
 - 374 Lake Forest & Portola Parkway (Pending Projects analysis impact): Convert the existing northbound approach from de-facto right-turn to a dedicated right-turn, and modify the existing traffic signal operation to include right turn overlap phase.

5.11.8 Level of Significance After Mitigation

The Certified EIR concluded that all intersections and roadway/freeway/tollway/ramp segments would operate at acceptable levels of service with the existing or planned improvements. However, the traffic analysis assumed that the cumulative impact of project traffic along with other regional growth at the identified ramp and freeway locations will be mitigated through a combination of regional programs that are the responsibility of other agencies. Therefore, the Certified EIR concluded that cumulative freeway/tollway ramp impacts would remain significant and unavoidable if these programs are not implemented by the agencies with the responsibility to do so.

Traffic impacts of the Modified Project have been identified by analyzing the study area circulation system based on existing traffic conditions and 2015, 2030 and Post-2030 future traffic conditions. In some cases, new project impacts that were not mitigated by improvements identified in the North Irvine Transportation Mitigation (NITM) Program have been identified for project development scenarios. Recommended mitigation measures for each impacted location are presented above. If there are intersections where identified improvements may not be feasible due to cost, right-of-way concerns, or community opposition, traffic impacts could remain significant and unavoidable.

Cities of Lake Forest, Laguna Woods, Mission Viejo and County of Orange Intersections and Arterial Segments

Inasmuch as the primary responsibility for approving and/or completing certain improvements located outside of Irvine lies with agencies other than the City of Irvine (i.e., City of Lake Forest, Laguna Woods, Mission Viejo, County of Orange, and Caltrans), there is the potential that significant impacts may not be fully mitigated if such improvements are not completed for reasons beyond the City of Irvine's control (i.e., the City of Irvine cannot undertake or require improvements outside of Irvine's jurisdiction). Should that occur, impacts relating to traffic generated by the project would remain significant.

The City of Irvine adopted the North Irvine Transportation Mitigation (NITM) Program to establish a funding mechanism for the transportation improvement mitigation measures identified in the Environmental Impact Reports (EIRs) for three future development projects in north Irvine; 1) Spectrum 8/PA40, 2) Irvine Northern Sphere Area (PAs 5B, 6, 8A and 9), and 3) the Orange County Great Park. This program will contribute to the improvement of facilities within Irvine and a fair-share to improvements outside the City of Irvine. The City acknowledges the fair-share cost of improvements to those facilities; however, the adjacent Cities have full control over implementing the identified improvements under their jurisdiction. If improvements are not completed for reasons beyond the City's control, the Modified Project's traffic impacts would remain significant.

Caltrans Main-Line Segments and Ramps

State highway facilities within the study area are not within the jurisdiction of the City of Irvine. Rather, those improvements are planned, funded, and constructed by the State of California. OCTA's Renewed Measure M provides a potential funding source and identifies general improvements on the I-5 Freeway within the study area and were analyzed at their recommended buildout in the traffic study for the Modified Project.

The City of Irvine adopted the North Irvine Transportation Mitigation (NITM) Program to establish a funding mechanism for the transportation improvement mitigation measures identified in the Environmental Impact Reports (EIRs) for three future development projects in north Irvine; 1) Spectrum 8/PA40, 2) Irvine Northern Sphere Area (PAs 5B, 6, 8A and 9), and 3) the Orange County Great Park. This program is specifically in place to contribute to the improvement of facilities within Irvine and a fair-share to improvements outside the City of Irvine. The City acknowledges the fair-share cost of improvements to Caltrans facilities; however, Caltrans has full jurisdiction toward implementing the identified improvements under its jurisdiction.

While potential impacts to the freeway mainline segments and ramps have been evaluated, implementation of the transportation improvements to Caltrans facilities listed above is the primary responsibility of Caltrans. While Caltrans has recognized that private development has a role to play in funding fair share improvements to impacts on the I-5, I-405, SR-133, and SR-241, Caltrans has not adopted a program that can ensure that locally-contributed impact fees will be tied to improvements to freeway mainlines and only Caltrans has jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that developer fair share contributions to mainline improvements are actually part of a program tied to implementation of mitigation is within the jurisdiction of Caltrans. However, a number of funding programs are in place in Orange County to assist in improving and upgrading the regional transportation system. If these programs are not implemented by the agencies with the responsibility to do so, the project's freeway/tollway ramp and mainline impacts would remain significant and unmitigated.

Consequently, Impact 5.11-1 would remain **significant and unavoidable**.

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