

FOR WATER CONSERVATION  
THIS PROPERTY IS IRRIGATED  
WITH RECLAIMED WATER

DO NOT  DRINK

COMO PARTE DE LOS ESFUERZOS DE  
CONSERVACION DE LA CIUDAD, ESTA AGUA  
HA SIDO TRATADA CON EL PROPOSITO DE  
SER UTILIZADA UNICAMENTE PARA RIEGO

**Integrated Waste  
Management**

## ***ELEMENT H*** **INTEGRATED WASTE MANAGEMENT**

***GOAL: Encourage solid waste reduction and provide for the efficient recycling and disposal of refuse and solid waste material without deteriorating the environment.***

### **Description of Integrated Waste Management Element**

Integrated waste management is described as a system for reducing, collecting, recycling and disposing of waste products generated by residential, institutional, commercial, and industrial land uses. Waste can be liquid and solid, hazardous and non-hazardous. The collection and disposal components of waste management are further described as follows:

1. **Solid, Non-hazardous Waste.**

Solid waste collection is usually accomplished by picking up refuse at the sources via collection vehicles, separating out recyclable materials at transfer stations, and then transporting the residual material

Solid wastes can be disposed of in several ways such as sanitary landfill, recycling, waste-to-energy, and composting.

#### ***Solid Waste Disposal Methods***

**Sanitary Landfill** - An area where waste is dumped, then buried beneath a layer of earth. Landfills are usually equipped with a liner to reduce soil and water pollution from contaminated seepage.

**Recycling** - The process of recovering useful materials from solid waste, including items for reuse.

**Waste-to-Energy** - The only renewable energy technology that provides communities with dual environmental benefits: a clean source of electricity and clean trash disposal. In the waste-to-energy process, trash is used as a fuel to generate power such as electricity or steam for central heating or cooling.

**Composting** - The process of converting yard waste into a usable organic compost. This process allows the conservation of valuable landfill space and also provides an excellent soil amendment.

## 2. Liquid, Non-hazardous.

Liquid, non-hazardous wastes are usually collected through a sewer system and treated at a waste water treatment facility with the liquid waste (effluent) being disposed of in the ocean or treated for reuse as reclaimed water. The resulting sludge can be disposed of in a sanitary landfill, sludge farm, or eliminated through incineration.

## 3. Hazardous Waste.

Hazardous wastes are required by state law to be recycled, treated on site or treated at a designated waste treatment facility whereby hazardous materials are neutralized prior to final disposal.

Liquid hazardous wastes are either treated at the waste source to neutralize hazardous components and then placed in the sewer system, or nontreated hazardous wastes are collected in specifically designed collection vehicles for ultimate disposal.

## Existing Conditions

Residential, institutional, regional commercial, and industrial solid waste is presently collected by private firms, with residential and village commercial collections franchised by the City. The waste collected is transported directly to the Frank Bowerman landfill. This facility is located north of Sand Canyon Avenue in Planning Area 3 and is operated by the County of Orange. A solid waste transfer station exists within Planning Area 36 (Irvine Business Complex). Figure H-1 shows the location of existing waste facilities in the City.

The City's existing wastewater system is primarily managed by the Irvine Ranch Water District (The Orange County Sanitation District provides service to Planning Area 36 only.) Most of the City's wastewater is collected and then treated at the Michelson Reclamation Plant located in Planning Area 23. The plant was constructed in 1966 and most recently expanded in 1980 to its present capacity of

15.0 million gallons per day (mgd). Most treatment effluent from the plant is used in agricultural and landscape irrigation, with some excess pumped to the Orange County Sanitation District for disposal.

The county operates a Household Hazardous Materials Collection Center at the City of Irvine Corporate Yard in Planning Area 12. Many hazardous materials, such as motor oil and antifreeze, are recycled or used for fuel. Residues of treated hazardous wastes (solid and liquid) are currently disposed of at specially permitted disposal and storage facilities. No such sites exist in Orange County and, therefore, materials must be transported to sites out of the county or out of state.

## Trends

Waste generation can be expected to increase as population in the City and county continues to grow. As landfill capacity decreases, additional solid waste disposal facilities will be necessary. This demand

will also have an effect on collection and disposal costs.

Public awareness of the replacement of sanitary landfills with some other waste disposal option will perhaps be the most critical issue of waste management in the



following years. Efforts to limit waste flowing into landfills through source

reduction and recycling will become increasingly important as the economies of scale for landfill construction and operation becomes increasingly prohibitive, in terms of land and haul costs, as well as costs associated with environmental degradation. In 1989 the State of California adopted, the Integrated Solid Waste Management Act (AB939), which mandated that each city and county develop and implement waste reduction and recycling plans. AB939 requires all jurisdictions to divert 50 percent of solid waste generated (as compared to 1990 levels) from landfills by the year 2000 or face the possibility of severe financial penalties. As of mid-1998, a significant amount of all waste generated in the City of Irvine, including office paper, cardboard, aluminum, green waste, plastics, glass and construction materials, is being diverted from the landfill and reused or recycled through City and private sector programs.

Another trend that can be expected in the coming years is a shift from conventional handling of solid and liquid hazardous wastes and sludge disposal to other alternatives more responsive to the

environmental and economic impacts of disposal. The county's role in providing waste disposal sites may be minimized if the private sector assumes



responsibility for providing waste disposal facilities. Such a shift in roles would increase the responsibility of the City to review and control waste facility sites. However, in 1998 the cities in Orange County entered into a ten-year agreement with the county to continue using the Frank Bowerman landfill, which will continue under county operation.

#### *Types of Waste*

**Solid Waste** - common household-variety trash with little or no liquid included

**Wastewater** - all liquid waste dumped in the sewer system via drains and toilets in households and businesses

**Green waste** - waste generated from maintaining landscaping, including grass and tree clippings

**Biosolids** - solids remaining after treating wastewater

**Note:** Many common products (paint, fertilizers, household cleaners), as well as many commercially used chemicals, are considered "hazardous." Hazardous waste can show up anywhere, in: household waste, wastewater, green waste, or biosolids.

Urban wastewater runoff is regulated by the Federal Water Pollution Control Act, which requires discharges into navigable waters to meet stringent standards. This is

implemented through the National Pollution Discharge Elimination System (NPDES). Construction activity, farming, and automobile maintenance are examples of some of the activities covered by the NPDES. The purpose of the system is to reduce the pollutants (trichloroethane, lead, zinc, carbon, pesticides, fertilizers, etc.) that accumulate from everyday activities on lands, streets and parking lots. Such pollutants are carried into the storm drains and ultimately into surface water bodies such as San Diego Creek and Upper Newport Bay. The City, as co-holder with the county and other jurisdictions of a general discharge permit, has adopted standards and Best Management Practices (“BMPs”) to control this type of pollution. The Best Management Practices (BMPs) for new development and significant redevelopment projects are subject to the Water Quality Management Plan requirements pursuant to Section 7 of the Drainage Area Management Plan (DAMP).



### **Identification of Issues**

- 1. What role should the City play in determining the location of solid waste facilities?**
- 2. What control does the City have in regulating privately operated disposal facilities?**
- 3. What criteria can be used in determining the land use compatibility of a waste facility?**
- 4. What is the City's responsibility in providing facilities (through land use decisions) for other cities' benefit?**

## Response to Issues

The following objectives and policies respond to the identified issues.

### ***OBJECTIVE H-1: SOLID WASTE***

***Cooperate in guiding the development and improvement of a solid waste disposal system within the County of Orange that will meet the needs of the City and protect the City from damage by unplanned disposal of refuse.***

*The following policies support Objective H-1:*

***Policy (a):*** Use the General Plan land use categories and building intensity standards as a basis for estimating waste disposal requirements and program needs.

***Policy (b):*** Encourage continued study of alternative waste disposal methods and technology with emphasis on reuse of solid waste materials and on waste-to-energy.

***Policy (c):*** Develop all waste disposal programs in cooperation with landowners, the county, and other jurisdictional and regulatory agencies.

***Policy (d):*** Work closely with the operator(s) of existing landfill sites to minimize deleterious effects on surrounding land uses including possible

impacts generated by rodent and insect populations, odors, and ground water conditions.

***Policy (e):*** Develop a detailed implementation program regarding the need and timing for transfer station(s) within the City.

***Policy (f):*** Explore the possibility for a system of solid waste management and collection that will facilitate recycling waste products and the possible generation of fuel at either a Citywide, planning area or residential unit scale.

***Policy (g):*** Require, to the extent necessary to comply with state law, during discretionary application review, solid waste reduction and recycling efforts for residential, commercial, industrial, institutional and recreational land uses to reduce the amount of waste disposed at landfills.

Require businesses which intend to handle or store hazardous substances (waste and materials) to obtain all necessary permits and comply with all regulations and standards administered by the California Environmental Protection Agency (Cal/EPA) - Department of Toxic Substances Control, Orange County Health Care Agency, Santa Ana Regional Water Quality Control Board, South Coast Air Quality Management District, Orange County Fire Authority and the City of Irvine Zoning, Building, and Public Safety Codes.

***Policy (h):*** Support the Orange County Integrated Waste Management Department's Regional Household Hazardous Materials Collection Center

program through public awareness education programs, such as City cable TV announcements, pamphlets, etc.

The California Department of Toxic Substances Control (DTSC) defines hazardous waste as follows:

Hazardous waste -- includes any waste that, due to its quantity, concentration, or physical, chemical, or infectious characteristics may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.
- Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

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## ***OBJECTIVE H-2: SOLID WASTE FACILITY SITING REQUIREMENTS***

***Control the siting of solid waste disposal facilities to minimize impact on adjacent or existing planned land uses.***

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*The following policies support Objective H-2:*

***Policy (a):*** Use the compatibility matrix and rating chart as shown in Figures 1 and 2 of Appendix H in reviewing proposed solid waste disposal or transfer station sites.

***Policy (b):*** Coordinate with the County of Orange as early as possible in the planning of solid waste facilities within the City.

***Policy (c):*** Pursue citizen input early in the planning process in order to identify community concerns regarding the location of any solid waste facility within the City.

***Policy (d):*** Review waste facility proposals in terms of costs and benefits to the City of Irvine. Particular attention should be paid to large scale facilities where the bulk of waste is generated outside of the City.

***Policy (e):*** Require sanitary landfill operators to use the best available technology as part of their landfill operations.

***Policy (f):*** Require landfills to operate in such a manner as to minimize adverse environmental impacts.

## **OBJECTIVE H-3: WASTE WATER**

***Control wastewater and storm runoff in a manner to minimize impact on adjacent existing or planned land uses.***

*The following policies support Objective H-3:*

***Policy (a):*** Encourage the use of recycled water sources for secondary water uses, such as fire hydrants, on-site fire sprinkler systems, and waste water systems, and for irrigation purposes to the greatest extent feasible.

***Policy (b):*** Require developers of new projects located adjacent to or upstream of natural water courses to develop surface drainage systems which will direct low flows (those which carry the most pollutants) away from natural water source into an area designed to remove pollutants. Require evidence be provided that any proposed development will have adequate sewer service, including assurance that collection and treatment capacity can be accommodated.

***Policy (c):*** Require a National Pollution Discharge Elimination System (NPDES) permit to be obtained from the State Water Resources Control Board whenever surface water is collected anywhere for discharge as a point source, or if a point source discharge is contemplated, a National Pollution Discharge Elimination System (NPDES) permit must be obtained from the State Water Resources Control Board.

Encourage the use of alternative Best Management Practices (BMPs) to control and minimize urban pollutant runoff.

***Policy (d):*** Limit disturbance of natural water bodies and drainage systems; conserve natural areas; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies.

***Policy (e):*** Minimize changes in hydrology and pollutant loading; require incorporation of control; including structural and non-structural BMPs, to mitigate the projected increases in pollutant loads and flows; ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat; minimize the quantity of stormwater directed to impermeable surfaces and the Municipal Separate Storm Systems (MS4s) and maximize the percentage of permeable surfaces to allow more percolation of stormwater into the ground.

***Policy (f):*** Preserve wetlands, riparian corridors, and buffer zones and establish



reasonable limits on the clearing of vegetation from the project site.

**Policy (g):** Encourage the use of water quality wetlands, biofiltration swales, watershed scale retrofits, etc., where such measures are likely to be effective and technically and economically feasible.

**Policy (h):** Provide for appropriate permanent measures to reduce stormwater pollutant loads from the development site.

**Policy (i):** Establish development guidelines for areas particularly susceptible to erosion and sediment loss.

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*Civilization is a limitless multiplication of unnecessary necessities.*

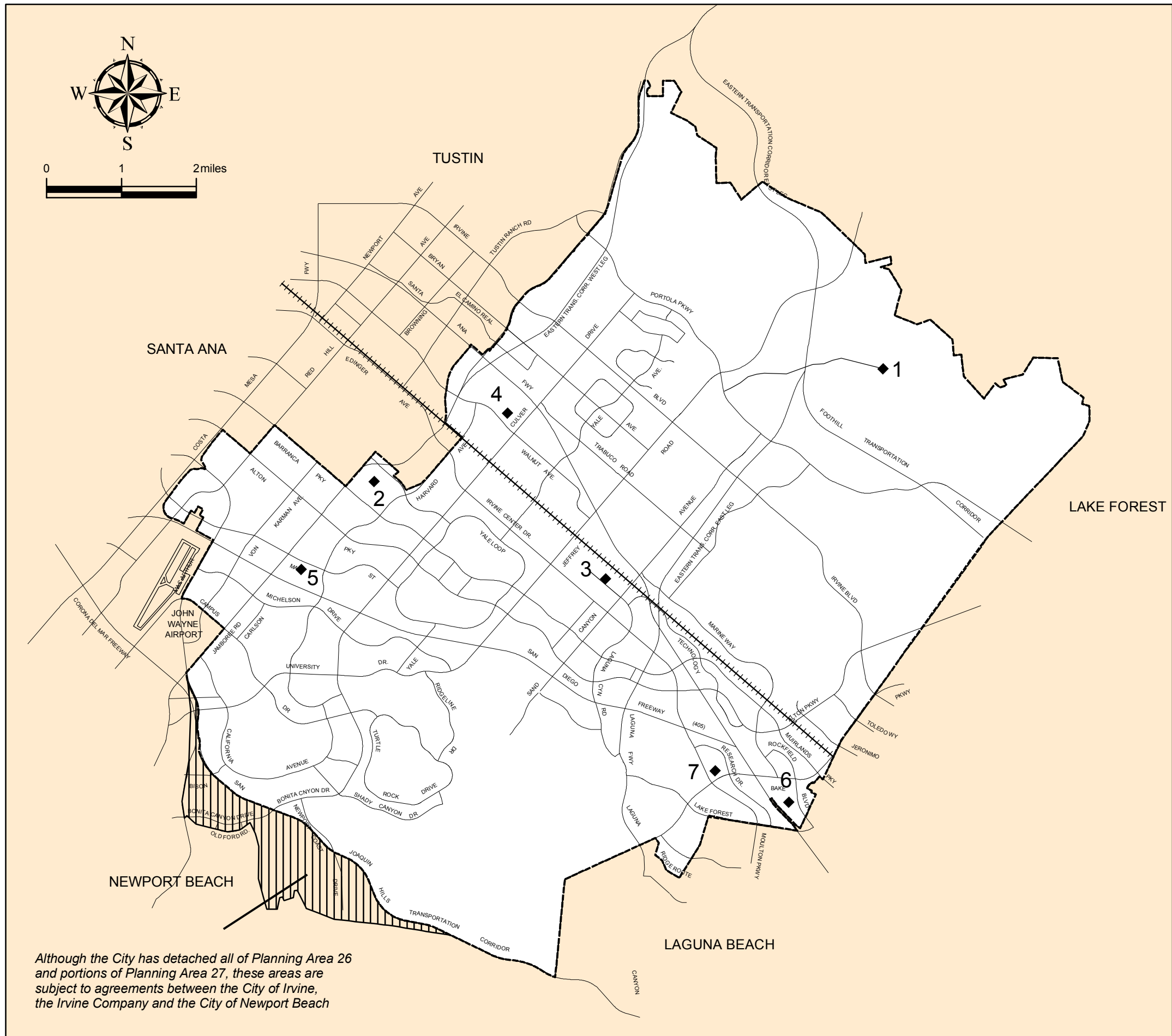
*Mark Twain*

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#### **RELATED OBJECTIVE NUMBERS**

The following objectives are related to the Integrated Waste Management Element:

Land Use Element - A-4, A-6  
Public Facilities and Services Element - G-1, G-2  
Energy Element – I-3  
Conservation & Open Space Element - L-6



*Figure H-1*

# ***SOLID WASTE FACILITIES***

## **LEGEND**

----- City Sphere  
of Influence

### **SOLID WASTE FACILITIES**

1/ Frank R. Bowerman Landfill ("Bee Canyon")  
Commercial Landfill

2/ Sunset Environmental Industries  
Public Disposal site for bulky items and  
recyclables buy back

3/ Irvine Regional Collection Center  
Household hazardous waste disposal

### **CERTIFIED USED OIL RECYCLING CENTERS (certified by the CA Integrated Waste Management Board)**

4/ Irvine City Auto Parts

5/ Jiffy Lube - Main St.

6/ Firestone Store

7/ Jiffy Lube - Spectrum