COUNTY OF LOS ANGELES

GENERAL PLAN

WATER AND WASTE MANAGEMENT ELEMENT

WATER AND WASTE MANAGEMENT ELEMENT

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INTRODUCTION

The Water and Waste Management Element describes present systems for water supply and distribution, flood protection, water conservation, sewerage, water reclamation, and solid-waste disposal and sets forth County policy on these systems. As a resource, water is discussed in the Conservation and Open Space Element.

Population growth in Los Angeles County is supported by an extensive infrastructure of water and waste management services. The extension of these services can contribute to the desired pattern of urban development; their absence in areas where the cost of extension of services is prohibitive can deter urban development. Thus, although the Element should not be construed as binding on cities, planning for water and waste management should be integrated with and guided by countywide growth and land use plans.

As a result of many years of advance planning, Los Angeles County has fewer problems than other parts of the country and is served by excellent water, sewerage, solid waste, and flood protection systems. Thus, the Element can focus on the need for resource recovery and for the protection and conservation of resources.

BACKGROUND

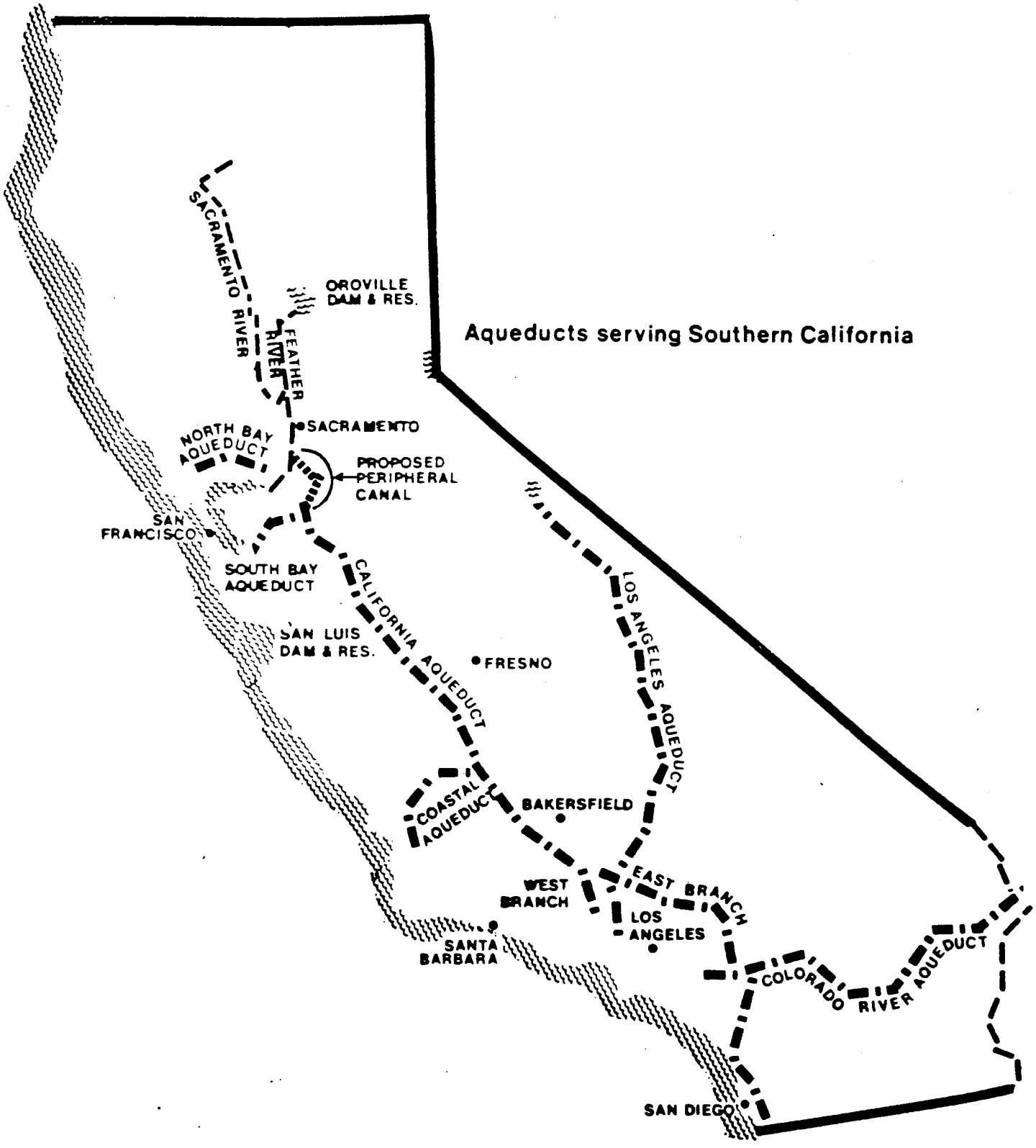
WATER SUPPLY AND DISTRIBUTION

Most water for the Los Angeles Basin, an area that encompasses the coastal plain and the San Gabriel and San Fernando Valleys, is imported. One-third of the water used in the Basin comes from local ground water and runoff including water from the Angeles National Forest watershed.(1)

Three public agencies import water into Los Angeles County: the Los Angeles City Department of Water and Power (DWP), which imports water from the Owens Valley and Mono Basin; the Metropolitan Water District of Southern California (MWD), which imports water from the Colorado River; and the California State Department of Water Resources (DWR), which imports water from Northern California. The aqueducts used to import water into the County are shown on Figure 6.1. The three importing agencies share responsibility for the wholesale distribution of water with 13 other public and private water agencies. Some of these wholesale distributors share pumping rights to local ground water with the 228 retail water agencies in the County.(2) Table 6.1 shows the number of the various types of water purveyors and the general areas they serve.

MWD has estimated that the water supply for the District will be adequate for the population anticipated in the year 2000. The projection assumes that 1) water will continue to be imported from the Owens Valley; 2) water will continue to be imported from the Colorado River, although at less than half the rate which is currently available; 3) supplies of surface and ground water will remain at their present levels; 4) the State Water Project will continue to meet its contractual obligation to the MWD; 5) water conservation will continue; 6) reuse of reclaimed wastewater will expand; and, 7) additional water will be stored by MWD in underground basins for later use in dry periods.(3)

FIGURE 6.1



source:
Metropolitan Water District of Southern California

TABLE 6.1

WATER PURVEYORS IN LOS ANGELES COUNTY

August 1980

Agencies	Islands	North County	South County	Total County
Importation Agencies	--	--	--	3*
Wholesale Water Agencies, Public and Private	--	4	9	13
Retail Water Agencies				
City Water Departments	--	--	41	41*
Retail Agencies, Public	--	7	16	23
County Waterworks Districts	--	10	8	18
Private Utility Companies	1	5	28	34
Mutual Water Companies	--	38	74	112
TOTAL	1	64	176	243*

Source: Metropolitan Water District of Southern California.

However, the Metropolitan Water District has indicated that the adequacy of water supplies for Southern California by the year 2000 is clouded by a number of factors, including: 1) uncertainties about the timing and level of deliveries of water from the State Water Project, caused by delays in constructing the Peripheral Canal and other facilities necessary to complete the State Water Project; 2) possible decrease in allowed water importation by the City of Los Angeles from Mono Basin and the Owens Valley; 3) uncertainty over the amount of water that will be allocated upon resolution of Indian tribal demands for Colorado River water; and, 4) increased costs and possible inadequacy of energy supplies needed to pump and transport imported water.(4)

*DWP is both an Importation Agency and a Retail Water Agency; accordingly, the total number of agencies is 243.

Thus, it is prudent to develop programs to reduce the County's dependence on imported water. Contracts were signed in 1978 for additional water reclamation feasibility studies, which would include studies of potential users and the impact of reclaimed water on the environment. Water suppliers, including the Metropolitan Water District, will provide at least a part of the $4,000,000 required for the 3-year program. The product will be a coordinated plan for expanding the use of reclaimed water. Implementation of this Plan, together with programs for water conservation and replenishing groundwater basins, will better prepare the County to face future droughts and to survive the disruption of water importation which might be caused by earthquakes or other disasters.

Water must be conserved by consumers to reduce the demand for this vital resource. In addition, the source of the local water supply, the watershed of the National Forests, must be protected against pollution.

While generally very high, the quality of water in Los Angeles County varies widely, especially in mineral content. Some problems are caused by salt water intrusion and mineral buildup in underground storage basins. Local deficiencies in the water supply and distribution system have occasionally caused quality and pressure problems in limited areas only.

Fire-flow pressure in some areas where systems were constructed before 1960 is inadequate to readily extinguish structural fires. Fire insurance ratings in these areas are affected, and premiums may increase. The inadequate pressure is often the result of aging or undersized water facilities that should be replaced or enlarged. Systems in these areas can become overloaded when low density land uses are replaced with higher density uses. Before such use intensification takes place, water supply systems should be evaluated and improved if necessary.

With regard to water quality and land-use planning, Section 208 of the Federal Water Pollution Control Act (Public Law 92-500) provides for comprehensive regional programs that will consider all sources of water pollution. The program has helped coordinate local land use planning with water quality planning. Los Angeles County has accumulated data and submitted recommendations regarding the Los Angeles County Subregion to the Southern California Association of Governments (SCAG), which has been designated the "208" regional agency for much of Southern California, including most of Los Angeles County. The California State Water Resources Control Board has been designated the "208" regional agency for the rural and desert areas of the State including the Antelope Valley in northern Los Angeles County. The goal of the "208" program is to make all waters in the nation safe for fishing and swimming by 1983.

FLOOD CONTROL AND AQUIFER REPLENISHMENT

The Los Angeles County Flood Control District includes all of the County except San Clemente and Santa Catalina Islands and a section of the Antelope Valley. Since its inception following a flood in 1914, the District has been responsible for the protection of life and property from storm water damage and for the conservation of storm waters for subsequent use. More recently, the protection of water quality has been an increasing responsibility.

Flooding has been almost eliminated in the District by the installation of flood control channels, storm drains, dams, debris basins, and pumping plants. The present system has been constructed over the past 50 years by the District, the United States Army Corps of Engineers, other federal agencies, the cities in the District, and private developers. The two main drainage systems, The Los Angeles River and the San Gabriel

River-Rio Hondo systems, are channelized from dams and debris basins in the foothills to outlets in the Los Angeles and Long Beach harbors. Storm drains carry storm water from streets to the flood channels. The Los Angeles County Flood Control District impounds storm water in flood control basins for later release to downstream water spreading grounds, where water percolates through porous soils to replenish ground water supplies. The District is also responsible for spreading the water purchased by member agencies of the Metropolitan Water District for ground water replenishment. This responsibility was assigned in the State legislation that created the District.

The District takes an active role in protecting ground water quality. In the West Coast Basin, Dominguez Gap, and Alamitos Barrier projects, water is injected into aquifers to prevent seawater intrusion.

In cooperation with other County departments, the District is also active in a study of flood plain management as part of the Federal Flood Insurance Program.

The District recognizes the growing concern for the environment with current emphasis placed on preventing problems rather than constructing solutions. Proposed drainage projects are now evaluated for their environmental impacts well before their engineering design or budgeting.

Flood control facilities generate two problems. These are the elimination of riparian habitats and the deposit of storm sediments. The construction and existence of concrete channels eliminate any potential for a riparian habitat; in addition, the visual impact is usually not as pleasing as the natural channel.

Storm sediments that accumulate in debris basins and reservoirs are difficult and expensive to dispose of. Sediments are usually disposed of in nearby canyons, thereby changing the rugged

terrain into level, terraced areas (which are suitable for open recreational uses).

The District is investigating methods of reducing the volume of accumulated silt and debris and of lowering disposal costs. Disposal methods under consideration include, but are not limited to, moving silt upstream or downstream as slurry in pipelines and transporting it in trucks or on conveyor belts during the dry season.

A related environmental problem is that of sand erosion along the beaches. The problem has two possible causes: The responsibility may lie with man made harbors, groins and breakwaters, or it may lie with the paving of natural storm channels and the construction of upstream dams, which inhibit the movement of sand downstream. Caltech and Scripps-La Jolla have undertaken a study to investigate this problem (other sponsors, representing most coastline jurisdictions, are now participating in the study). The analysis complements ongoing studies by the County Engineer-Facilities. Sand movement resulting from tidal action can now be predicted.(5)

SEWERAGE AND WATER RECLAMATION SYSTEMS*

Sewage disposal and waste water reclamation services in Los Angeles County are provided by 29 sanitation systems distributed throughout the County: the City of Los Angeles has 2 sewerage systems; 24 County sanitation districts are active, 15 of which have combined to form the Joint Outfall System; and 3 independent water agencies also operate sewerage systems.

Water reclamation, from sewage, may include as many as three stages of treatment, each of which separates the sewage into

*Sewage flows through sewers. Sewerage refers to the network of sewers and may include plants for treatment and water reclamation.

two components: 1) an effluent or liquid; and, 2) sludge or solids. Primary treatment screens out most of the solids found in raw sewage. Secondary treatment of primary effluent is a biochemical action which includes the extraction of additional solids and produces a higher quality chlorinated effluent. Tertiary treatment is an additional step in the treatment process producing a highly clarified quality water and usually includes at least two different filters and additional chlorination.

In the central area, two major sewerage systems and one minor sewerage system serve the Los Angeles basin. The County Sanitation Districts of Los Angeles County operate a major sewerage system in the San Gabriel River drainage area. This system, the Joint Outfall System, extends from Pomona and Pasadena through Whittier to Long Beach and then to the Joint Water Pollution Control Plant in Carson. Five upstream water reclamation plants reclaim 85 million gallons per day (mgd) of water from sewage. The concentrated sludge is discharged back into the sewer system and transported to the Joint Water Pollution Control Plant at Carson for final treatment and disposal. The upstream plants provide secondary treatment and are being upgraded to provide tertiary treatment.(6)

The City of Los Angeles, in conjunction with other cities, owns and operates a sewerage system in the upper Los Angeles River, the San Fernando Valley, and the Ballona Creek drainage areas. Sewage is treated at plants in Burbank and near Griffith Park and at the Hyperion Treatment Plant at Imperial Highway and the Santa Monica Bay. The upstream plants treat more than 26 mgd of sewage and reclaim over 10 mgd of water for reuse. In the future, these plants will reclaim nearly 30 mgd.

In the harbor area, a community-sized system serves Wilmington, San Pedro, and Terminal Island. The treatment plant is on Terminal Island. The outfall, which now discharges into Los Angeles Harbor, is being extended beyond the breakwater.

In the peripheral area, Crescenta Valley is served by three small sanitation agencies: the Crescenta Valley County Water District, which operates the small Wiley Reclamation Plant (secondary treatment); County Sanitation District 28, which operates the La Canada Water Reclamation Plant (secondary) and supplies reclaimed water to irrigate the nearby golf course; and County Sanitation District 34, which was recently voted into existence by the residents of La Canada-Flintridge, an area presently unsewered.

The Santa Monica Mountains area is served by the Las Virgenes Municipal Water District. Secondary treatment is provided at the Tapia Park Water Reclamation Plant, which serves the Ventura Freeway corridor and the northern slope of the Santa Monica Mountains. Although coastal Malibu is not sewered, County Sanitation District 33 was formed to serve the area if approved by a majority vote of the residents. Southern Topanga Canyon is served by County Sanitation District 29, which discharges sewage into the Los Angeles City system for treatment at the Hyperion facility.

Santa Clarita Valley is served by two community sewerage systems: County Sanitation District 26, serving Saugus and Canyon Country, and County Sanitation District 32, serving Newhall and Valencia. Each system has a water reclamation plant. The treated effluent is used for ground water recharge. District 26 also accepts sewage from the trunk sewers of the Newhall County Water District for treatment at the Saugus plant.

Antelope Valley has two community sewerage systems: County Sanitation District 14, serving Lancaster and Quartz Hill, and County Sanitation District 20, serving the Palmdale area. Each has its own oxidation pond type of secondary treatment plant. District 14 provides advanced or tertiary treatment for 0.5 mgd of reclaimed water, which is piped to Apollo County Park for the three recreational lakes there (this development was made possible by a grant under the State-financed Davis-Grunsky Act).(7) District

20 provides some treated effluent for agricultural use. Both districts make effective use of oxidation ponds for treatment and effluent disposal in this dry, high desert.

Approximately 300,000 residents of the County live in dwellings not connected to sanitary sewers.(8) In general, these dwellings are in non-urban areas and have septic tanks and leach lines in lieu of sewers. These disposal methods are satisfactory if the tanks are properly designed, constructed, maintained, and are pumped regularly; the soil composition permits percolation of the effluent; and the tanks and leach lines are far enough away from ground water supplies to avoid pollution.

In some unsewered areas, additional growth could cause health hazards. To prevent this problem, several alternatives are available. These include: 1) proper design, construction, and maintenance of septic tanks and leach lines by individuals; 2) septic tank maintenance districts; 3) neighborhood treatment facilities operated by competent professionals; and, 4) connection to sewers. The selection of an alternative for an area will depend on the long-range land use projections for that area; the economic capability of the area to fund major capital improvements; and the geological composition of the land.

A major problem facing the sanitation agencies in the coastal basin is compliance with the Environmental Protection Agency (EPA) requirement for a clean (at least secondary treatment) effluent and with no sludge discharge to the ocean. The original deadline of July 1, 1977, was partially met by the Los Angeles City facilities at Hyperion and Terminal Island, and the County Sanitation Districts' plant at Carson. Work has begun to upgrade the Joint Water Pollution Control Plant at Carson to provide partial secondary treatment and is due to be completed in 1983. Currently sludge from this facility is being hauled by truck to a sanitary landfill.

It should be noted that requirements and deadlines for compliance could change. Studies under the 208 program may either lead to new and stronger restrictions or may warrant a relaxation of requirements. Public Law 95-217 (which amends PL 92-500, the Federal Water Pollution Control Act) permits waivers on ocean discharge.

The Los Angeles County Sanitation Districts, the City of Los Angeles, the Orange County Sanitation Districts, the California State Water Resources Control Board, and the EPA are participating in the Los Angeles/Orange County Metropolitan Area (LA/OMA) Regional Waste Water Solids Management Program. The study portion of the Program is an analysis of methods of sludge disposal including ocean discharge.

The City of Los Angeles has obtained extensions on the EPA deadlines for sludge disposal and secondary treatment of effluent. Under the terms of a consent decree, the City is allowed to continue discharge of sludge to the ocean until 1985. The City also applied for a waiver from the EPA regulations for full secondary treatment.

As the population increases and industrialization continues, the volume of liquid waste will continue to increase (unless otherwise restrained, as it was through water conservation during the 1977 drought). The disposal of such waste is necessary to prevent the deterioration of the urban environment and the quality of our lives. As the quality of the effluent from treatment is improved, more reclaimed water will be available for beneficial uses such as landscape and agricultural irrigation, industrial cooling, and ground water replenishment. At present, 17 treatment plants reclaim 143 mgd of water from sewage. However, an additional 667 mgd of reclaimed water is not reused.(9) Assuming that the Carson and Hyperion plants are upgraded to meet current state and federal standards, markets and additional spreading grounds for safe filtration to the aquifer must be found.

The use of treated effluent in place of imported potable water complements water conservation strategies. When current contracts between water importation agencies and their electrical suppliers expire, energy costs to import water will rise sharply. As costs of potable water rise to reflect energy costs, the use of effluent will become economically more feasible, and the demand for imported water will be reduced. A larger amount of the imported water can then be used for ground water replenishment as a reserve against future droughts.

INDUSTRIAL AND SOLID WASTE DISPOSAL

Solid waste disposal in Los Angeles County involves essentially two operations: collection and hauling, and disposal. By volume over 90 percent of industrial refuse collected, 72 percent of commercial refuse collected, and 40 percent of residential refuse collected is taken up by the many private hauling contractors in the County. The rest is collected by city departments and garbage districts. There are about 800 refuse-hauling contractors in Los Angeles County, operating approximately 2,000 vehicles.(10)

Historically, solid-waste disposal has involved land. Over the years, the town dump has been replaced by the sanitary landfill, where each day's deposits are compacted and covered with earth. The many small disposal sites have been replaced by large privately and publicly owned sites operated by individuals, cities or County sanitation districts. Increased landfill capacity became necessary after 1957, when residential incinerators were banned to reduce air pollution. The existing landfill sites were unable to accommodate the increased volume of refuse. Accordingly, the County Sanitation Districts established landfill operations. In Los Angeles County, there were, in 1979, 20 major landfill sites and approximately 20 minor sites. Many of these sites will be closed by the end of 1980. The fill capacity of the remainder will be severely depleted by the year 2000.(11)

Refuse that goes into landfills comes from three main sources: households contribute 41 percent; construction and demolition industries, 31 percent; and commercial, industrial, and all other sources, 28 percent.

There are four types of disposal facilities for solid waste. At transfer stations, refuse is transferred from the collection truck to another means of conveyance. Class I landfills accept non-radioactive liquid and hazardous waste (Group 1 wastes). Class II landfills accept the largest amount of waste, including non-hazardous liquid waste (Group 2 wastes). Class III landfills are the most restrictive and will accept only inert materials (Group 3 wastes). Group 3 materials are accepted in Class II facilities, and Group 2 and Group 3 materials are accepted at Class I sites.

There were only three Class I landfills operating in 1979 in the County and all three may be filled by 2000.(12) Although the shortage of Class I landfill is critical, the major solid waste problem in the County is the shortage of Class II facilities. It is possible that permits for existing landfills may not be renewed; in such an event all landfill capacity would be depleted by the year 2000 (see Table 6.2).

Landfills often alter the environment, and public acceptance of landfill sites is a growing problem. When a landfill or its access route is adjacent to a residential development, problems arise because of heavy truck traffic, blowing refuse, dust, noise, unpleasant odors, the hazards of methane gas and other health and safety concerns. Other problems are caused by the replacement of the many scattered sites with fewer, larger sites. When refuse must be hauled longer distances, expenses are higher, vehicular emissions increase, and more refuse transfer stations are needed. Greater consideration must also be paid to the safety of hauling hazardous wastes. Because of the shortage of landfill sites and

TABLE 6.2

QUANTITIES OF WASTE RECEIVED AT MAJOR CLASS I AND II LANDFILLS IN LOS ANGELES COUNTY 1979 - 80

		QUANTITIES RECEIVED (tons/yr) [1]							
		SOLID WASTE							
Landfill Name	Class	Group 2 Waste	Group 3 Waste	Total	Liquid Waste [2]	Hazardous Liquid Waste [3]	Total Waste	Estimated Remaining Capacity Millions of Tons	Estimated Life In Years
Palos Verdes Landfill	I	1,214,300	123,900	1,338,200	118,300	(99,000)	1,456,500	0	[5]
Spadra Landfill	II	250,800	38,100	294,900	2,800		297,700	4	15 [4]
Mission Canyon Landfill	II	1,201,600	363,100	1,564,700	—		1,564,700	18.7	12
Scholl Canyon Landfill	II	660,600	58,300	718,900	—		718,900	25	40
Calabasas Landfill	I	496,300	54,400	550,700	86,000	(67,000)	636,700	18	30 [4]
Puente Hills Landfill	II	2,115,300	38,600	2,153,900	73,500		2,227,400	110	40 [4]
Toyon Canyon Landfill	II	436,200	259,900	696,100	—		696,100	1	1.5
Lopez Canyon Landfill	II	345,000	112,300	457,300	—		457,300	15	25
Burbank City Landfill	II	52,200	3,800	56,000	—		56,000	.56	10
City of Whittier Landfill	II	100,000	15,000	115,000	—		115,000	5.7	50
North Valley Landfill	II	161,400	278,000	439,400	—		439,400	40	40 [4]
Bradley Avenue Dump	II	13,600	157,700	171,300	—		171,300	7.0	20
Penrose Pit	II	160,400	364,000	524,400	—		524,400	0.5	2
Azusa Western	II	471,700	58,300	530,000	—		530,000	3.8	14
BKK Landfill	I	928,300	9,000	937,300	450,500	(275,700)	1,387,800	65	50 [4]
Operating Industries Landfill	II	522,000	18,000	540,000	171,000		711,000	2.5	4
Ascon	II	140,400	5,400	145,800	44,300		190,100	0.2	[5]
Harbor Dump	II	18,700	17,900	36,600	—		36,600	0	[5]
Chiquita Canyon	II	78,800	—	78,800	—		78,800	unk	35
Antelope Valley Public Dump	II	48,800	13,400	66,200	—		66,200	unk	15
Lancaster Dump	II	50,600	15,600	66,200	—		66,200	1.8	15
TOTAL		9,473,000	2,004,700	11,481,700	946,400	(441,700[3])	12,428,100	319.86	

[1] [3] Tonnage for period I July 1979 through 30 June 1980.

[2] [4] For the Class I landfills tonnage shown includes a small amount of solid Group I waste. Requires additional land use permits to utilize full capacity.

[5] Included in "Liquid Waste" quantities. Less than 1 year.

SOURCES: County Engineer-Facilities
County Sanitation Districts
Report on Determination of Solid Waste Quantities in Los Angeles County Wastesheds, Prepared for County Engineer-Facilities by Engineering-Science Consultants, October 1980.

the environmental problems created by the sites, ways of reducing the volume of waste and alternatives to landfilling must be found.

The economics of waste disposal faculty siting, however, should never outweigh public health, safety and welfare. As Class I waste disposal is a potential threat to public health, safety and welfare, technological studies for reducing waste volume and handling toxics safely demand immediate attention.

Recycling has been suggested as a way of reducing the volume of solid waste. Government and private enterprise are seeking economical methods for separating and recycling reusable materials such as paper, glass, plastic, aluminum, and tin. Salvageable materials might be segregated from other refuse at the source--the home, business, or industry. Since 1977 the City of Downey has been engaged in a prototype operation of segregating materials for recycling.

Converting waste to energy may be another way of reducing the volume of solid waste. A number of resource-recovery facilities throughout the nation are in various stages of planning, design, or construction. A few are in prototype operation; some anticipate full operational status shortly; others have failed to operate reliably to date. The County sanitation districts are monitoring the design and operation of these facilities closely. None of the systems presently in full operation can meet the stringent air quality standards of the Los Angeles basin. Open ponds as a liquid waste disposal technique should not be allowed until their effects on air quality are studied and measured. Evaporation of liquid waste from open ponds may degrade air quality.

Two resource-recovery facilities have been proposed for Los Angeles County. The County Sanitation Districts have applied for grant funding for a water-wall incinerator to be constructed in the vicinity of Long Beach. The system will convert 900 tons of refuse per day to steam to be sold to nearby industries, or

employed onsite in the generation of electricity, with regional low quality steam, then sold to secondary users. The system is designed to meet all applicable air quality standards. The other proposed resource recovery facility, the Watson Energy System, will be privately owned. It will be similar in design and operation to the Long Beach facility. No dates have been set for the pilot operation of either plant.

Other methods for efficient refuse disposal such as composting, pyrolosis, and ocean disposal have also been considered. However, due to the time required for engineering, funding and evaluating the impact on the environment, sanitary landfills will continue to be the major means of solid waste disposal for at least ten more years as reported by the Los Angeles County Sanitation Districts. (13) The long range solution will involve recycling, resource recovery and elimination of waste production at the source. The new technologies will not completely eliminate the need for landfill, but the rate at which landfill capacity is consumed will be diminished.

Methane gas, generated through biological digestion of solid waste in landfills and in sewage treatment plants, can and is being recovered. At two City of Los Angeles sites, the gas is used to generate the electricity used at the site. The completed portions of the Palos Verdes landfill are presently producing sufficient gas to satisfy the needs of 2,500 customers of Southern California Gas Company. This pilot operation will be expanded in the future.

The need for future transfer station sites will be lessened by the emphasis of the Plan on resource recovery. The general areas most suitable for future transfer stations are located within incorporated cities, and are subject to their land use control regulations. In addition, unlike landfills, transfer stations can generally be located in a wide variety of industrial areas that are accessible to transportation facilities. They do not

permanently alter the nature of the ground and can, therefore, be replaced by other uses if they are no longer needed. Accordingly, the Plan does not attempt to delineate specific locations for future transfer stations.

The California Solid Waste Management and Resource Recovery Act of 1972 (SB 5) necessitated a study of the County's solid-waste management program. The County Engineer-Facilities, at the direction of the Board of Supervisors and with other local agencies, prepared the Los Angeles County Solid Waste Management Plan (CoSWMP) dated October, 1977. This plan is scheduled for updating in 1981. State law requires that a County Solid Waste Management Plan be compatible with its General Plan. In updating the CoSWMP, land use suitability and compatibility with surrounding land uses will be a major consideration.

In adopting the plan, the Board of Supervisors created the Los Angeles County Solid Waste Management Committee, which includes representatives from the public, industry, and government. Citizens now wish a greater role in developing and updating the CoSWMP. The Committee will review, for conformity with the CoSWMP, sites for new landfills to replace facilities that are filled to capacity. The Committee will forward to the California State Solid Waste Management Board recommendations for future permits for transfer stations, and recycling and resource recovery centers.

OBJECTIVES

The objectives of the Water and Waste Management Element are:

- To mitigate hazards and avoid adverse impacts in providing water and waste services and to protect the health and safety of all residents.

- To develop improved systems of resource use, recovery, and reuse.

- To provide efficient water and waste management services.

- To maintain the high quality of our coastal, surface, and ground waters.

NEEDS AND POLICIES

POLICY STATEMENTS

Improve Service Efficiency

There are approximately 1,000 agencies, public and private, involved in providing water and waste services in the County. Service efficiency has suffered because of a lack of effective coordination among these agencies, especially between the public and private sectors, overlapping operating standards imposed by at least seven agencies, and a lack of uniform criteria and performance standards for evaluating the services and facilities provided.

POLICY

1. Increase service efficiencies, both within individual agencies and among agencies performing similar functions, while striving to reduce costs.

2. Improve coordination among operating agencies of all water and waste management systems.

3. Encourage private firms and public agencies providing water and waste management services to cooperate with all levels of government in establishing, enacting, and enforcing consistent standards and criteria.

4. Encourage compatible, multiple use of water and waste management facilities, including public recreational utilization, where consistent with their original purpose and the maintenance of water quality.

5. Cooperate with federal, State, regional, and local agencies to develop and implement new technologies in water and waste management while continuing existing methods until new alternatives are economically feasible.

Reduce Service Deficiencies

Major deficiencies include the lack of water in aquifers and the shortage of solid waste landfill capacity. Technological advancements may reduce reliance on landfills.

POLICY

6. Increase storage of potable water in underground aquifers through greater use of spreading grounds.

7. Protect the capacity of Class I landfills by restricting their acceptance of nonhazardous wastes.

8. Promote solid waste technology, including source reduction, to reduce dependence on sanitary landfills.

9. Promote the advancement of technology to reduce the volume of liquid waste.

10. Accelerate the implementation of advanced technological methods for waste disposal, and expand the countywide capacity of sanitary landfills only as justified by need.

11. Explore immediately user cooperation with federal and state agencies for use of public lands for waste disposal.

12. Ensure the location, acquisition, and development of landfill sites which meet the environmental and siting criteria for hazardous liquid and solid wastes.

Relate Expansion of Service to Demonstrated Need

The extension of services and the development of related facilities should not create an undue burden upon existing development or induce growth inconsistent with the General Plan.

POLICY

13. Program water and sewer service extensions to be consistent with General Plan policies and to mitigate situations that pose immediate health and safety hazards.

14. Continue to recover off-site costs for capital improvements necessitated by development, including required additional plant capacity, as well as other water and waste management facilities.

Reduce Detrimental Impacts on Natural and Man Made Environments

Adverse effects on the natural, social and man-made environment arising from water and waste management development must be anticipated and mitigated where they cannot be avoided.

POLICY

15. Require an independent geologic study for all Class I disposal applications.

16. Prohibit the degradation of air quality by requiring the mitigation of emissions from waste disposal sites.

17. Protect public health and prevent pollution of ground water through the use of whatever alternative is necessary.

18. Provide protection for ground water recharge areas to ensure water quality and quantity.

19. Avoid or mitigate threats to pollution of the ocean, drainage ways, lakes, and ground water reserves.

20. Design flood control facilities to minimize alteration of natural stream channels.

21. Design and construct new water and waste management facilities to maintain or protect existing riparian habitats.

22. Design water and waste management systems which enhance the appearance of the neighborhoods in which they are located and minimize negative environmental impacts.

Promote Conservation, Recycling, and Reuse

The recycling of wastes and the conversion of waste to energy will reduce the need for sanitary landfill capacity. Water conservation and reclamation and the restoration of aquifers would help reduce the County's dependence on imported water.

POLICY

23. Facilitate the recycling of wastes such as metal, glass, paper, and textiles.

24. Use technology for the conversion of waste to energy.

25. Encourage development and application of water conservation, including recovery and reuse of storm and waste water.

POLICY MAPS

INTRODUCTION

The Water and Waste Management Element policy maps (to be found in the pocket at the back of the Plan) are graphic extensions of written policy. These maps will serve the County and other levels of government as guides in the provision and capital improvement programming of water and waste management services.

The extension of water and waste management systems must be consistent with development programs of the other Plan elements. In consideration of the substantial investment required for the installation of underground service systems, economy dictates that initial design should be for a population at least equal to that projected in the Plan for the year 2000.

WATER SERVICE POLICY MAP

Background items include water importation lines (Metropolitan Water District, Los Angeles City Department of Water and Power, and the State Water Project), major transmission lines (diameter of 30 inches or greater), water treatment (not including water reclamation) plants, and lakes and reservoirs. In addition, water spreading grounds and water injection barrier projects (to halt intrusion of salt water into basin aquifers) are shown.

The legend also describes proposed importation and transmission lines, and areas needing additional service. Areas designated for recycle or infilling in the General Goals and Policies Chapter may require service upgrading based upon the comparative water dependence of existing and proposed uses.

The sources for this map include the Los Angeles County Flood Control District, the County Engineer-Facilities "630" map series and analysis of existing water service.

FLOOD PROTECTION POLICY MAP

This policy map depicts the extensive existing system that protects persons and property in the Los Angeles River and the San Gabriel River-Rio Hondo drainage basins.

The legend includes the existing major channelized flood control facilities, natural drainage courses, debris basins, flood control dams, as well as the Los Angeles County Flood Control District boundary. In addition, the map describes areas recommended for flood plain management as well as areas which may warrant channelized facilities. Upon completion of channels, surrounding areas previously designated as needing flood plain management should be reevaluated. Channelized facilities may be of concrete but the Plan recommends methods which avoid the alteration of natural stream channels.

Sources for this map are the County Engineer-Facilities "630" map series (based upon information derived from the County Flood Control District), and the historic inundation map for areas outside of the Flood Control District prepared by the County Engineer-Facilities. In addition, the draft Antelope Valley and the Santa Clarita Valley Areawide Plans were used as the basis for depicting proposals in the North County.

SEWERAGE SERVICE POLICY MAP

This policy map displays the sewer system within the County based upon trunk sewer data provided by the County Sanitation Districts and the Los Angeles City Sanitation Bureau as well as a sewer capacity map prepared by the County Engineer-Facilities.

Background data includes major trunk sewers and water reclamation plants. Proposed facilities are suggested as guides for capital improvement programming rather than as specific sites or alignments. These include plants for the reclamation of water from sewage as well as trunk sewers. Some of these may be subject to a majority vote of residents and the legislative governing body for the area to be served.

The legend also describes areas needing additional service in order to correct existing and anticipated health hazards and to serve potential new development. It appears that only localized system improvements will be necessary to accommodate the projected growth in urbanized areas.(14) Urban and non-urban areas currently using septic tanks may eventually require sewers or viable cost-effective alternatives including community sewers, septic tank maintenance districts, or onsite disposal equipment now in development and testing.

LOS ANGELES COUNTY SOLID WASTE MANAGEMENT PLAN MAP

This policy map enumerates existing transfer stations and landfill facilities. As one site fills, refuse collectors will move to other sites based upon economics and the proximity to their respective collection areas. Future transfer station sites have not been shown because they can be located in many industrial areas, and do not necessarily constitute long-term uses. The Map also approximates the location of a projected resource recovery facility.

Potential landfill sites were identified on the Map on the basis of their incorporation in the Los Angeles County Solid Waste Management Plan (CoSWMP), as adopted by the Board of Supervisors on October 25, 1977. A symbol reflecting the specific potential class of landfill has been affixed only where the text of the CoSWMP has indicated a class. Sites not specifically identified are shown as Potential Class II or III. Other potential sites

may exist. Intermediate or combination class sites will not be permitted and a site will be classified only Class I, Class II or Class III. Class I sites may accept Group 2 and 3 materials and Class II may accept Group 3 materials. No disposal site will be changed to a more hazardous class without conducting the same studies required for that higher level facility at a new site. The CoSWMP, by State law, must be reviewed and updated at not more than three year intervals. Sites may be added or deleted during such revisions.

These potential facilities have not been subject to extensive evaluation and analysis regarding possible impacts. It cannot be determined whether these sites are feasible until a thorough investigation of each site can be completed. A comprehensive geologic study of each site shall be required for the protection of water quality. All Class I facilities shall be located away from existing or potential residential areas. Class II and III facilities to be sited near existing or potential residential areas must be reviewed to consider the effects on the community before project approval.

The provisions of the Zoning Ordinance (Los Angeles County Ordinance No. 1494, as amended) are applicable in the unincorporated territories of the County. The Ordinance prohibits landfills or waste disposal facilities in Zones B-1, B-2, MPD, P-R, and SR-D. Subject to a Conditional Use Permit (CUP), the use may be permitted in all other zones. It is the intent that the Zoning Ordinance be reviewed as to the appropriateness of waste disposal facilities in certain zones and to establish specific review criteria, especially for Class I Landfills.

In considering a CUP application for a waste disposal facility, the Regional Planning Commission is guided by the technical expertise of agencies such as the County Engineer-Facilities, the County Flood Control District, and the County Health Department

as well as the Los Angeles Regional Water Quality Control Board, the State Air Resources Board, the South Coast Air Quality Management District, and others appropriate to the individual case. The criteria to be applied by the Commission in considering an application include the regional and local need for the specific waste disposal facility as well as the potential impacts the use will have upon the community. These impacts include but are not limited to noise, odor, visual, circulation/traffic, air and water quality, seismic safety and safety. Regional need should not outweigh the impact on the community. Potential hazards should be given greater consideration than the regional need.

In addition, it is appropriate for the Commission to consider the criteria of other federal, State and local agencies. An example would be the geological requirements of the California Administrative Code, summarized as follows:

Class I Landfill: Natural geological barriers must exist that would prevent hazardous liquids from percolating down to usable ground waters. Similar barriers must exist to prevent the runoff of hazardous wastes to surface water except that these barriers may be artificial. Protection for ground and surface waters must be for all time.

Class II Landfill: The geological requirements for Class II sites are similar to those for Class I. The principal differences are that the barriers may be artificial rather than natural, and surface waters are protected against the 100 year flood.

Class III Landfill: Location, construction and operation must prevent erosion of wastes.

The Commission must also conduct a public hearing which shall be in the community closest to the proposed site to receive testimony relating to the application. Following a public hearing, the Commission may approve the application subject to conditions regulating the landscaping, maintenance and operating hours as well as the regulation and mitigation of nuisance factors such as noise, smoke, dust, dirt, odors, gases, noxious matter and such other conditions as will allow the use in accordance with the General Plan.

Because of the special risks associated with Class I Landfills, extraordinary procedures are appropriate in considering approval of conditional use permits for such sites. Public hearings in the community closest to the proposed site will be conducted by the entire Commission rather than the Zoning Board. Moreover, in addition to the other criteria recited above, the Commission will be required to compare the proposed site with other available sites to meet the identified need.

After making such a comparison, the Commission must find that the proposed site is so removed from other development as to impose virtually no risk to the public health, safety and welfare.

If the Commission determines that the use is in conflict with the General Plan or that the use will adversely affect the public health, safety, or general welfare, the Commission shall deny the application.

In summary, five types of facilities are shown. These are: 1) Class I landfills, which will accept non-radioactive hazardous waste; 2) Class II landfills, accommodating the largest amounts of waste including non-hazardous liquid waste; 3) Class III landfills, the most restrictive, accepting inert materials only; 4) transfer stations where waste is

transferred from the collection vehicle to another conveyance; and 5) resource recovery facilities where, through such methods as incineration or pyrolosis, waste is converted to energy. Group 3 materials are accepted at Class II landfills and Group 2 and 3 materials are accepted at Class I sites.

WATER AND WASTE MANAGEMENT ELEMENT
FOOTNOTES

1. Los Angeles County Flood Control District, *Hydrologic Report* 1974-74, Los Angeles County, October 1976, page 5.

2. Los Angeles County Department of Regional Planning, Unpublished Report, Los Angeles County, 1977.

3. Conversation with Richard Clemmer, MWD, August 1980.

4. Ibid.

5. Various conversations with County Engineer, Coastal Engineering Section, 1977.

6. Sanitation Districts of Los Angeles County, *Draft EIS/EIR Joint Outfall System Facilities Plan,* April 1976, p. IV-5.

7. Sanitation Districts of Los Angeles County, *Project Report, District 14 Influent Pumping Plan Modification,* (Los Angeles, California) September, 1972, p. 9.

8. U.S. Bureau of Census, *1970 Census Tracts: Los Angeles-Long Beach SMA's PHC(1)-117 Part 2, Final Report,* U.S. Department of Commerce, USGPO, Washington, D.C., 1972.

9. The data used is a combination from two sources. These are:

   Sanitation Districts of Los Angeles County, *Draft EIS/EIR Joint Outfall System Facilities Plan,* April 1976, p. IV-5.

   U.S. Environmental Protection Agency, *Draft EIS City of Los Angeles Wastewater Treatment Facilities Plan,* San Francisco, California, September 1977, *Passim.*

10. Raymond P. Delrich, Executive Director of Greater Los Angeles Solid Waste Management Association, *Presentation for Work Group on Goals and Objectives,* County Solid Waste Management Plan, March 5, 1974.

11. Project Planning and Pollution Control Division, County Engineer, *Major Landfills, Los Angeles County,* April 15, 1974, *Passim.*

13. Sanitation Districts of Los Angeles County, *Mission Canyon Landfill Final Environmental Impact Report, Volume 1,* July 1980, page V-15.

14. Telephone conversations with County Sanitation Districts, 1977.

WATER AND WASTE MANAGEMENT ELEMENT
GLOSSARY*

ACTIVATED SLUDGE
Sludge that has been aerated and subjected to bacterial action, used to remove organic matter from sewage.

ACTIVATED SLUDGE PROCESS
The process of using biologically active sewage sludge to hasten breakdown of organic matter in raw sewage during secondary waste treatment.

ADVANCED WASTE TREATMENT
Waste water treatment beyond the secondary or biological state that includes removal of nutrients such as phosphorus and nitrogen and a high percentage of suspended solids. Advanced waste treatment, known as tertiary treatment, is the "polishing stage" of waste water treatment and produces a high quality effluent.

ANAEROBIC
Refers to life or processes that occur in the absence of oxygen.

AQUIFER
An underground bed of stratum of earth, gravel or porous stone that contains water.

AQUIFER RECHARGE
Return of water to the aquifer or natural underground storage.

BODY CONTACT WATER
Reclaimed water of purity sufficient to permit swimming but not for regular ingestion.

CHANNELIZATION
The straightening and deepening of streams to permit water to move faster, to reduce flooding or to drain marshy acreage for farming. Channelization reduces the organic waste assimilation capacity of the stream and may disturb fish breeding and destroy the stream's natural beauty.

CLASS I LANDFILLS
Landfills which will accept non-radioactive, hazardous solid and liquid waste.

CLASS II LANDFILLS
Landfills which will accept solid and non-hazardous liquid waste.

CLASS III LANDFILLS
Landfills which will accept inert materials only.

COMMUNITY SEWER
A sewerage system and treatment facility designed to serve a compact community without extensive trunk lines.

CURBSIDE SALVAGING
The removal of presorted recycleable materials by scavengers from the householder's overnight storage site at the curb.

DEBRIS BASINS
Dam areas used to filter debris from flood waters before water continues downstream.

DISSOLVED SOLIDS (TDS)
The total amount of dissolved material, organic and inorganic, contained in water or wastes. Excessive dissolved solids make water unpalatable for drinking and unsuitable for industrial uses.

DISTRIBUTION LINES
Pipelines used for distribution of water from transmission lines within the service area.

DRINKABLE QUALITY WATER
Water of sufficient purity that it may be drunk without hazard to health.

*Sources: **Common Environmental Terms: A Glossary,** compiled by Gloria J. Stoddard, U.S. Environmental Protection Agency, Washington, D.C., 1973, pp. 1-23; **A Primer on Waste Water Treatment,** U.S. Environmental Protection Agency, Washington, D.C., revised March 1971, pp. 24 and 25.

EFFLUENT
A discharge of pollutants into the environment, partially or completely treated or in its natural state. Generally used in regard to discharges into waters.

EVAPORATION PONDS
Shallow, artificial ponds where sewage sludge is pumped, permitted to dry and either removed or buried by more sludge.

GROUNDWATER
The supply of freshwater under the earth's surface in an aquifer or soil that forms a natural reservoir for man's use.

GROUNDWATER RECHARGE
See aquifer recharge.

GROUP 1 WASTE
Waste which consists of or contains toxic substances and substances which could significantly impair the quality of usable waters.

GROUP 2 WASTE
Waste which consists of or contains chemically or biologically decomposable material which does not include toxic substances nor those capable of significantly impairing the quality of usable waters.

GROUP 3 WASTE
Waste which consists entirely of nonwater soluble, nondecomposable inert solids.

INERT
Non-water soluble, non-decomposable solids having no active chemical properties.

INFRASTRUCTURE
The underlying installation and facilities on which the continuance and growth of a community depends, including water, sewerage and other utilities.

JWPCP
Joint Water Pollution Control Plant.

LEACH LINES
Subsurface lines for septic tank effluent percolation.

METHANE GAS
A colorless, non-poisonous, flammable organic gas recovered during anaerobic digestion.

MGD
Millions of gallons per day. Mgd is commonly used to express rate of flow.

MITIGATION MEASURES
Facility design including landscaping to minimize the impact upon the environment in which a facility is located.

OUTFALL
The mouth of sewer, drain or conduit where an effluent is discharged into the receiving waters.

OXIDATION POND
A man-made lake or pond in which organic wastes are reduced by bacterial action.

PERCOLATION
Downward flow or infiltration of water through the pores or spaces of rock or soil.

POTABLE WATER
Water suitable for drinking or cooking purposes from both health and aesthetic considerations.

PRIMARY EFFLUENT
Liquid discharge after primary treatment.

PRIMARY TREATMENT
The first stage in waste water treatment in which substantially all floating or settleable solids are mechanically removed by screening and sedimentation.

RECHARGE
To restore.

RECLAMATION
See waste water renovation.

RECYCLING
The process by which waste materials are transformed into new products in such a manner that the original products may lose their identity.

REFUSE RECLAMATION
The process of converting solid waste to saleable products. For example, the composting of organic solid waste yields a saleable soil conditioner.

REPLENISHMENT
To refill, i.e., place water in the aquifer by any means.

RESOURCE RECOVERY
The process of obtaining materials or energy, particularly from solid waste.

RIPARIAN HABITAT
The natural location of animals or plants on or near the banks of lakes, rivers and streams.

RUNOFF
The portion of rainfall, melted snow or irrigation water that flows across ground surface and eventually is returned to streams. Runoff can pick up pollutants from the air or the land and carry them to the receiving waters.

SALINITY
The degree of salt in water.

SALT WATER BARRIER PROJECTS
The injection of fresh water into coastal aquifers to prevent the intrusion of sea water.

SANITATION
The control of all the factors in man's physical environment that exercise or can exercise a deleterious effect on his physical development, health and survival.

SANITARY LANDFILL
A site for solid waste disposal using sanitary landfilling.

SANITARY LANDFILLING
An engineered method of solid waste disposal on land in a manner that protects the environment; waste is spread in thin layers, compacted to the smallest practical volume and covered with soil at the end of each working day.

SANITARY SEWERS
Sewers that carry only domestic or commercial sewage. Storm water runoff is carried in a separate system. See sewer.

SEA WATER INTRUSION
The invasion of sea water into a body of fresh water, occurring in either surface or groundwater bodies.

SECONDARY TREATMENT
Waste water treatment, beyond the primary stage, in which bacteria consumes the organic parts of the wastes. This biochemical action is accomplished by use of trickling filters or the activated sludge process. Effective secondary treatment removes virtually all floating and settleable solids and approximately 90 percent of both BOD's and suspended solids. Customarily, disinfection by chlorination is the final stage of the secondary treatment process.

SEPTIC TANK
An underground tank used for the deposition of domestic wastes. Bacteria in the wastes decompose the organic matter, and the sludge settles to the bottom. The effluent flows through drains into the ground. Sludge is pumped out at regular intervals.

SEWAGE
The total of organic waste and waste water generated by residential and commercial establishments.

SEWAGE TREATMENT
See primary treatment and secondary treatment.

SEWER
Any pipe or conduit used to collect and carry away sewage or storm water runoff from the generating source to treatment plants or receiving streams. A sewer that conveys household and commercial sewage is called a sanitary sewer. If it transports runoff from rain or snow, it is called a storm sewer, in Southern California it is called a storm drain.

SEWERAGE
The entire system of sewage collection, treatment and disposal. Also applies to all effluent carried by sewers whether it is sanitary sewage, industrial wastes or storm water runoff.

SLUDGE
The solid matter removed from sewage during waste water treatment that settles to the bottom, floats or becomes suspended in the sedimentation tanks and must be disposed of by filtration, incineration or by transport to water or land disposal sites.

SLUDGE DISPOSAL
Organic solids removed from waste water, which must be subsequently treated and disposed of as a solid waste.

SOLID WASTE
Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, or other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities.

SOLID WASTE DISPOSAL
The ultimate disposition of refuse that cannot be salvaged or recycled.

SOLID WASTE MANAGEMENT
The purposeful, systematic control of the generation, storage, collection, transport, separation, processing, recycling, recovery and disposal of solid wastes.

SPREADING GROUNDS
Surface ground areas used for holding water to allow its percolation to the aquifer.

STORM SEWER (STORM DRAIN)
A conduit that collects and transports rain and snow runoff back to the ground water. In a separate sewerage system, storm sewers are entirely separate from those carrying domestic and commercial waste water.

TERTIARY TREATMENT
Waste water treatment beyond the secondary, or biological stage that includes removal of nutrients such as phosphrous and nitrogen, and a high percentage or suspended solids. Tertiary treatment, also known as advanced waste treatment, produces a high quality effluent.

TRANSFER STATIONS
Sites where waste is transferred from collection trucks to larger vehicles for ultimate disposal.

TRANSMISSION LINES
Pipelines used for moving large volumes of water within the service area.

WASTE
Also see solid waste. (1) Bulky waste – items whose large size precludes or complicates their handling by normal collection, processing or disposal methods. (2) Construction and demolition waste – building materials and rubble resulting from construction, remodeling, repair and demolition operations. (3) Hazardous waste – wastes that require special handling to avoid illness or injury to persons or damage to property. (4) Special waste – those wastes that require extraordinary management. (5) Wood pulp waste – wood or paper fiber residue resulting from a manufacturing process. (6) Yard waste – plant clippings, prunings and other discarded material from yards and gardens. Also known as yard rubbish.

WASTE WATER
Water carrying wastes from homes, businesses and industries that is a mixture of water and dissolved or suspended solids.

WASTE WATER RENOVATION OR RECLAMATION
The stablization and removal of fine suspended solids, BOD, and COD from waste water for possible reuse.

WATER IMPORTATION FACILITIES
All canals, pipelines, pumping stations, dams, and treatment plants used to bring water into an area.

WATER IMPORTATION LINES
Major pipelines and canals to bring water into an area. Examples include the State Water Project, Metropolitan Water District, Colorado Aqueduct, and the City of Los Angeles Owens Valley System.

WATER POLLUTION
The addition of sewage, industrial wastes or other harmful or objectionable material to water in concentrations or in sufficient quantities to result in measurable degradation of water quality.

WATER PURVEYORS
Public or private water agencies or companies selling water to consumers.

WATER QUALITY CRITERIA
The levels of pollutants that affect the suitability of water for a given use. Generally, water use classification includes: public water supply; recreation; propagation of fish and other aquatic life; agricultural use and industrial use.

WATER QUALITY PLAN
A plan for water quality management containing four major elements: the use (recreation, drinking water, fish and wildlife propagation, industrial or agricultural) to be made of the water; criteria to protect those uses, implementation plans (for needed industrial-municipal waste treatment improvements) and enforcement plans, and an anti-degradation statement to protect existing high quality waters.

WATER SUPPLY SYSTEM
The system for the collection, treatment, storage and distribution of potable water from the sources of supply to the consumer.

WATER TREATMENT PLANT
A plant at which potable water is chemically softened or mixed with higher quality water to reduce the total dissolved solids.