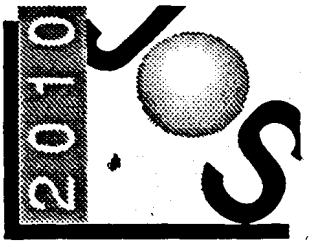
Chapter 2

Plan Description and Alternatives



Chapter 2. Plan Description and Alternatives

DESCRIPTION OF THE JOINT OUTFALL SYSTEM SERVICE AREA

County Sanitation Districts of Los Angeles County

The Districts are a confederation of independent special districts serving the water pollution control and solid waste management needs of approximately 5 million people in Los Angeles County. The Districts' service area covers approximately 770 square miles and encompasses 78 cities and unincorporated areas in the county (Figure 2-1). The mission of the Districts is to construct, operate, and maintain facilities to collect, treat, and dispose of sewage and industrial wastes; provide for wastewater reclamation; and provide for disposal and management of solid wastes, including refuse transfer and resource recovery. The Districts own, operate, and maintain more than 1,200 miles of main trunk sewers and 11 wastewater treatment plants, which currently convey and treat approximately 510 million gallons per day (mgd) of wastewater, approximately 35% of which is available for reuse in the arid southern California climate. Local sewers and laterals that connect to Districts trunk sewers and solid waste collection are the responsibility of local jurisdictions.

The Districts comprise 26 separate districts that work cooperatively under a Joint Administration Agreement (JAA), with one administrative staff headquartered near Whittier. Each district has a separate board of directors, which consists of the presiding officers of the local jurisdictions located in the district, and each district pays its proportionate share of joint administration costs.

Joint Outfall System

Fifteen of the districts that are located in metropolitan Los Angeles County participate in the Joint Outfall Agreement (JOA), which provides for combined investment in wastewater conveyance and treatment facilities. These 15 districts (Nos. 1, 2, 3, 5, 8, 15, 16, 17, 18, 19, 21, 22, 23, 29, and South Bay Cities) are collectively known as the Joint Outfall Districts (JOD) and are located in the central Los Angeles Basin in the eastern and southern portions of Los Angeles County (Figure ES-1). The JOD extend south and west from the foothills of the San Gabriel Mountains to the Palos Verdes Peninsula and are bounded on the east by Orange and San Bernardino Counties, on the west by the Cities of Los Angeles and Glendale and Santa Monica Bay, and on the south by San Pedro Bay.

The JOD have constructed an interconnected, regional system of sewers and treatment facilities known as the Joint Outfall System (JOS). The JOS provides wastewater treatment and disposal services for residential, commercial, and industrial users and presently includes six wastewater treatment plants with a combined capacity of approximately 576 mgd and connected by more than 1,000 miles of main trunk sewers with 48 pumping plants. Figure ES-1 shows the regional location of JOS facilities affected by the 2010 Plan. The JOS service area encompasses 72 cities and unincorporated territory in the Los Angeles Basin. JOS facilities currently serve approximately 4.6 million people and treat approximately 470 mgd of wastewater.

OBJECTIVES OF THE JOINT OUTFALL SYSTEM 2010 MASTER FACILITIES PLAN

Overview of Objectives

The objectives of the 2010 Plan are to:

- provide full secondary treatment for all flows, as required by a Consent Decree (Consent Decree) between the Districts, the United States, the State of California, the Natural Resources Defense Council, and Heal the Bay, and

- provide wastewater conveyance, treatment, and reclamation/disposal facilities to meet service area needs through 2010 in a cost-effective and environmentally sound manner.

These objectives are described in detail below. The Districts propose to meet these objectives by implementing a comprehensive plan that would include upgrading the level of treatment at the JWPCP, increasing existing wastewater treatment plant capacities, constructing additional solids processing facilities, providing relief of the existing sewer lines, and continuing existing biosolids management practices and identifying new practices (see "Descriptions of Alternatives Considered in the Environmental Impact Report" below).

Full Secondary Treatment

After the 1977 amendments to the Clean Water Act (CWA) were passed by the U.S. Congress, the Districts applied to EPA in 1979 for a waiver from the full secondary treatment requirement for the JWPCP in accordance with Section 301(h) of the amended CWA. After a series of tentative EPA decisions and revised waiver applications, the Districts submitted

the most recent application on January 20, 1988. EPA issued a final denial of the permit application in December 1990. The Districts appealed EPA's decision. An appeal is an administrative matter, however, and does not prevent judicial enforcement of EPA's decision.

In January 1992, EPA and the RWQCB filed suit against the Districts under Section 309 of the CWA to compel full secondary treatment at the JWPCP. The Districts have negotiated a settlement to this action with the United States, the State of California, the Natural Resources Defense Council, and Heal the Bay through a Consent Decree under which the Districts have agreed to drop their pending appeal. The Consent Decree contains a schedule for the construction of facilities to provide full secondary treatment to all JOS discharges by December 31, 2002.

Projected Population

Previous Projections

In 1977, the Districts completed a long-range master facilities plan to provide wastewater collection, treatment, and disposal services to the population of the JOD through the year 2000 and to upgrade JOS facilities in order to comply with the CWA and state water quality legislation that had recently been enacted. State of California regulations for administering the federal Clean Air Act in critical air basins required that the 1977 JOS Facilities Plan (1977 Plan) be based on a "no-growth" population projection (Department of Finance, Series E-O) that the JOS service area population would remain constant at 3.65 million through the year 2000. Based on this projection, the 2000 JOS wastewater flow was expected to be between 415 and 450 mgd. The 1977 Plan identified necessary system upgrades and emphasized inland reclamation and reuse of wastewater.

Contrary to the "no-growth" population projection on which the 1977 Plan was based, the JOS population grew rapidly during the 1980s. By 1993, the JOS service area population had grown to approximately 4.6 million. As the population increased, so did the volume of wastewater generated in the JOS. The 1977 Plan projected up to 450 mgd of wastewater flow in the JOS in the year 2000, but JOS facilities treated as much as 524 mgd of wastewater in 1989 and presently treat approximately 470 mgd of wastewater. The recent decline in JOS wastewater flow is a result of extended drought conditions and the economic recession in Southern California.

Projections Used for the 2010 Plan

The population and employment projections used for the 2010 Plan are derived from projections developed for the SCAG 1994 RCP. The growth management element containing these projections was adopted in June 1994 by the SCAG Regional Council. The Air and Toxics Division of EPA has approved the use of these latest planning assumptions (Pallarino

pers. comm.) for the 2010 Plan. To estimate the 2010 population in the JOS, the Districts disaggregated the JOS service area (Figure ES-1) from SCAG's RCP population projections, which encompass the entire six-county SCAG region (Figure 2-1). The Districts used a geographic information system (GIS) model of census tract and drainage area boundaries. Table 2-1 shows 1990 and 2010 populations calculated for the 12 JOS drainage areas (Figure 2-2). Disaggregation of the SCAG projections indicates that the JOS service area population will increase to more than 5.2 million by 2010. Detailed descriptions of the Districts' methodology for estimation of the JOS 2010 population are provided in the draft 2010 Plan, which is currently available for review at the Districts' Joint Administrative Office in Whittier, California, and at local libraries in the JOS service area.

Joint Outfall System Capacity Needs

Wastewater flow generated in the JOS service area will total approximately 628 mgd in 2010 (Table 2-2). This estimate is based on SCAG's 1994 disaggregated population projections, average residential/commercial flows of 101 gallons per capita per day (an estimate from the last 6-year historical average), and industrial flow projections by drainage area. Detailed descriptions of the Districts' existing and projected wastewater demand are provided in the draft 2010 Plan.

By 2004, the Districts anticipate a shortfall in system capacity if the existing permitted capacity of 576 mgd is not expanded. By 2010, residential and commercial flows will reach approximately 526 mgd (84% of total flows), and industrial flows will reach approximately 102 mgd (16% of total flows). This estimate takes water conservation into account based on historical wastewater flows in the JOS.

OVERVIEW OF JOS WASTEWATER TREATMENT AND CONVEYANCE SYSTEM

The JOS has evolved into two conceptual wastewater treatment subsystems: a downstream or coastal subsystem served by the JWPCP in Carson and an upstream or inland subsystem served by water reclamation plants (WRPs) located adjacent to either the San Gabriel River, the Rio Hondo, or San Jose Creek. JOS treatment facilities are interconnected by a wastewater conveyance system. A brief description of these systems is provided below.

Table 2-1. JOS Population Forecast by Treatment Plant Drainage Areas, 1990-2010

Tributary Treatment Plant	Drainage Area	Number of Residents			Percentage Growth	Percentage of Total JOS Growth
		1990	2010	Growth		
Pomona WRP	1	172,657	214,900	42,243	24.5	5.7
San Jose Creek WRP	2	667,154	811,323	144,169	21.6	19.3
San Jose Creek or Whittier Narrows WRPs	3	327,836	402,678	74,842	22.8	10.0
Whittier Narrows or Los Coyotes WRPs	5	387,638	455,789	68,151	17.6	9.1
JWPCP	6	4,244	7,124	2,880	67.9	0.4
Los Coyotes WRP	7	247,818	285,815	37,997	15.3	5.1
Los Coyotes WRP or JWPCP	8	192,139	210,855	18,716	9.7	2.5
Long Beach WRP	9	54,948	61,923	6,975	12.7	0.9
Long Beach WRP or JWPCP	10	165,990	206,011	40,021	24.1	5.4
JWPCP	11	2,230,737	2,540,631	309,894	13.9	41.5
JWPCP	12	4,397	4,996	599	13.6	0.1
JWPCP	13	693	795	102	14.7	0.0
JOS service area (total)	all	4,456,251	5,202,840	746,589	16.8	100.0
Los Angeles County	---	8,863,200	11,317,000	2,453,800	27.7	---

Sources: Southern California Association of Governments 1994c.

Table 2-2. JOS Treatment Capacity Needs for 2010

Drainage Area	Residential/ Commercial Flow (mgd)	Industrial Flow (mgd)	Total Flow (mgd)
1	21.7	0.72	22
2	82.1	3.75	86
3	40.8	1.59	42
5	46.1	2.40	49
6	0.7	0.29	1
7	28.9	2.16	31
8	21.3	1.06	22
9	6.2	0.13	6
10	20.8	0.29	21
11	257.1	81.05	338
12	0.5	0.00	1
13	0.1	0.72	1
Chino Basin[a]	N/A	7.6	7.6
TOTAL	526.3	101.77	628[b]

Note: N/A = not applicable (industrial flows only).
[a] Flows from Chino Basin are part of a contract entitlement.
[b] Columns and rows may not total correctly because of rounding.

Coastal Subsystem

The coastal subsystem includes one wastewater treatment plant, the JWPCP, which is located in Carson at the terminus of the Districts' JOS trunk sewer network (Figure ES-1). The JWPCP is the Districts' largest and oldest wastewater treatment facility. The JWPCP presently has a permitted capacity of 385 mgd and provides partial secondary treatment to influent wastewater. All influent wastewater receives advanced primary treatment, and approximately 200 mgd of the wastewater (approximately 60%) receives secondary treatment. All JWPCP effluent is discharged to the Pacific Ocean through the Districts' ocean outfalls approximately 2 miles off Whites Point off the Palos Verdes Peninsula, at a depth of approximately 200 feet. The JWPCP also provides centralized solids processing for all JOS wastewater treatment facilities. Dewatered, digested biosolids are hauled offsite for reuse or disposal. The JWPCP currently treats approximately 321 mgd of wastewater and processes approximately 1,300 wet tons per day of biosolids. JWPCP facilities are described in detail below under "Existing Joint Outfall System Facilities".

Inland Subsystem

The inland subsystem, which is located upstream of the JWPCP, evolved as a result of the need to develop new water supplies in the Los Angeles Basin. Between 1945 and 1965, the population of Los Angeles County doubled and demands for water increased correspondingly. Despite the importation of water by the Metropolitan Water District of Southern California (MWD) via the Colorado River Aqueduct, the demand for water in the Los Angeles Basin had outgrown the sustainable yields of local aquifers by 1954. By 1960, local aquifers were being substantially overdrafted. In addition, by the early 1960s, wastewater flows in the JOS began to approach the capacity limits of downstream trunk sewers and interceptors. The Districts' facilities planning began to focus on the combined objective of accommodating increased wastewater treatment demand and augmenting the regional water supply through water reclamation.

At this time, a plan was developed to build WRPs at inland sites as an alternative to the massive expansion of the downstream sewer system and the JWPCP, which would otherwise be necessary. Studies found that it would be economically feasible to withdraw wastewater with relatively low dissolved solids concentrations from the largely residential northern and eastern portions of the JOS and treat it to levels suitable for reuse. The proposed inland WRPs were, therefore, designed to serve two purposes: hydraulic relief for downstream sewers and the JWPCP and relief for the overdrafted aquifers in the Los Angeles Basin. The rationale for inland water reclamation on a systemwide level was formally presented in Districts' plans in 1963 and in 1965.

The inland treatment system currently includes five water reclamation plants that provide tertiary treatment to all flows:

- the Los Coyotes WRP in Cerritos, with a current permitted treatment capacity of 37.5 mgd;
- the San Jose Creek WRP near the City of Industry, with a current permitted treatment capacity of 100 mgd;
- the Whittier Narrows WRP near South El Monte, with a current permitted treatment capacity of 15 mgd;
- the Long Beach WRP in Long Beach, with a current permitted treatment capacity of 25 mgd; and
- the Pomona WRP in Pomona, with a current permitted treatment capacity of 13 mgd.

The inland WRPs included in the 2010 Plan are described below.

EXISTING JOINT OUTFALL SYSTEM FACILITIES

This section describes in detail the existing JOS facilities identified for modification in the 2010 Plan and includes the JWPCP, three inland WRPs, and the wastewater conveyance system. In addition to operating and maintaining facilities to treat, convey, and dispose of wastewater, the Districts' pretreatment program regulates nonresidential waste discharges into their sewers, as required by the CWA. Under this program, which has been in effect since 1972, the Districts have the authority to prohibit or limit discharges of any pollutant that could pass through the treatment process into receiving waters, interfere with treatment plant operations, or limit biosolids disposal options. The Districts' pretreatment program has been very successful in reducing the discharge of constituents of concern to its JOS treatment plants, especially the JWPCP. Since 1975, several constituents have been reduced by as much as 90%.

Joint Water Pollution Control Plant

The JWPCP, located in Carson, is the largest of the six wastewater treatment plants in the JOS and has been the main location for wastewater treatment for the JOS service area since 1928. The JWPCP drainage area is also the largest in the JOS; it includes the South Bay cities and extends north to Los Angeles city limits and as far east as Lakewood (Figure 2-2). The JWPCP site occupies approximately 310 acres and the Districts lease an additional 63 acres to a container nursery. The JWPCP property is bordered by the Wilmington Drain and the Harbor Freeway (I-110) on the west, an oil refinery on the east, and residential areas on the north and south (Figure 2-3).

The JWPCP currently provides preliminary treatment, advanced primary treatment (polymer added before primary sedimentation), and partial secondary treatment to influent wastewater. Ocean outfalls that discharge treated effluent, solids processing facilities, laboratory facilities, equipment storage and maintenance areas, and administrative facilities are also located at the JWPCP (Figure 2-3).

Preliminary Treatment Facilities

Facilities for preliminary treatment at the JWPCP are located on the western portion of the site, between the Wilmington Drain and Figueroa Street. Large debris from influent sewage is removed with bar screens and ground into smaller particles to protect equipment, and is then pumped to aerated grit chambers where relatively heavier suspended matter (grit) settles out. Approximately 15 tons of grit are removed from the grit chambers each day and hauled to landfills via truck for codisposal with municipal solid waste. A portion of JWPCP flow must be pumped to primary treatment facilities, but more than half flows to these facilities by gravity.

Primary Treatment Facilities

To aid settling, polymer conditioning chemicals are added to wastewater that is transported to sedimentation tanks to undergo primary settling, a process in which heavy solids settle to the bottom of the tanks and lighter material floats to the top. The settled solids and floatable material are pumped to digestion tanks for further processing. Primary effluent is presently pumped into two streams. One stream is sent through fine mesh (traveling) screens to remove any additional floatable particles, and the other receives secondary treatment via a pure oxygen-activated sludge process in tanks east of Figueroa Street. Primary sedimentation tanks, influent and effluent pump stations, and force mains are sized for 400 mgd although the permitted capacity is 385 mgd.

Secondary Treatment Facilities

The JWPCP has a secondary treatment capacity of 200 mgd. Wastewater receiving secondary treatment is pumped to aeration tanks east of Figueroa Street. Bacteria are grown in the wastewater to consume the remaining organic material. Pure oxygen, which is generated by an onsite cryogenic system adjacent to the secondary settling tanks, is added to supply the bacteria with needed oxygen. The wastewater-bacteria mixture flows to secondary settling tanks where the bacteria clump and settle to the bottom of the tank. Some of the bacteria are returned to the aeration tanks and the rest are sent to the air flotation thickening facilities prior to digestion.

Ocean Outfall Facilities

Both the advanced primary and secondary effluent streams are disinfected with chlorine, and the combined flow is conveyed to the ocean outfalls by a 6-mile-long system of tunnels that extend below the Palos Verdes Peninsula. Effluent is discharged through outfall pipes about 2 miles offshore (see Figure ES-1 in the Executive Summary). The effluent exits through many portholes along the last segments of the pipes and mixes with ocean water at a depth of approximately 200 feet.

Solids Processing Facilities

Primary and secondary solids generated at inland WRPs are returned to JOS trunk sewers for conveyance to the JWPCP, where they are removed and treated along with solids generated within the area directly tributary to the JWPCP. Solids generated within the JOS service area are ultimately removed at the JWPCP and are pumped to anaerobic digesters at the JWPCP. In digesters, anaerobic bacteria feed on the organic material in the solids and create methane gas as a byproduct, which is used to fuel boilers, pump engines, and power generation facilities. The digested solids are then pumped to low-speed scroll centrifuges east of Figueroa Street for dewatering. Chemical conditioning agents are added to improve the

efficiency of dewatering facilities. The digested, dewatered solids, which may be called biosolids at this stage, are conveyed to truck-loading stations, from which they are hauled offsite for composting, direct land application, or landfilling.

Biosolids Disposal and Reuse

Biosolids generated at the JWPCP site are currently transported offsite using trucks operated by Districts staff and private contractors. Currently, an average of 59 trucks per day are loaded with biosolids and hauled to offsite locations for disposal (average 52%) or reuse (average 48%). Biosolids are disposed of or reused in three different ways: codisposal with municipal solid waste at the Puente Hills Landfill located near Whittier (approximately 25 miles away), with subsequent recovery and reuse of methane gas; production of soil amendments via offsite composting in Thermal (approximately 150 miles away) and in Riverside County (approximately 70 miles away); or direct land application in Yuma, Arizona (approximately 270 miles away).

Inland Water Reclamation Plants

Three of the five JOS WRPs are being considered for expansion in the 2010 Plan: Los Coyotes, San Jose Creek, and Whittier Narrows WRPs. Wastewater treatment at the JOS WRPs includes primary, secondary, and tertiary treatment. The Districts' tertiary treatment system produces an effluent that meets Department of Health Services (DOHS) criteria for unrestricted recreational use and consistently meets drinking water standards for trace constituents.

The Districts' JOS WRPs are equipped with several unique features, including covered primary tanks to control odors, fine-bubble-diffusion systems (except at Los Coyotes WRP) to reduce energy use, and an interconnected sewer system that conveys all solid residuals from WRPs to the JWPCP for centralized processing. Compared with the JWPCP, each WRP treats a much lower volume of wastewater and occupies substantially less land.

Los Coyotes Water Reclamation Plant

The Los Coyotes WRP has a current capacity of 37.5 mgd and is located in Cerritos. Although the Districts own a total of 34 acres at the site, only the southern half of the site currently contains wastewater treatment facilities; the Districts lease the northern half of the site to the City of Cerritos, which operates the Ironwood Golf Course and driving range. The driving range is contained completely on Districts property; the golf course extends west of the WRP property on a Southern California Edison (SCE) easement. The San Gabriel River Freeway (I-605) is east of, and the Artesia Freeway (State Route [SR] 91) is south of, the Los Coyotes WRP (Figure 2-4).

Current treatment at the Los Coyotes WRP consists of primary sedimentation; secondary treatment via a conventional air-activated sludge process and clarification; tertiary treatment consisting of coagulation and gravity filtration;, and chlorination and dechlorination. No solids processing facilities are provided at the Los Coyotes WRP. All solids removed from the wastewater are returned to the JO "F" trunk sewer for conveyance to the JWPCP for processing.

Reclaimed water produced at the Los Coyotes WRP is relatively underused. In 1993, only 3 mgd of the 33 mgd of reclaimed water produced at the Los Coyotes WRP was reused. Effluent that is not reused is partially dechlorinated and discharged to the lined channel of the San Gabriel River upstream of the river's tidal prism. Effluent that is reused directly remains chlorinated and is sold to the Cities of Cerritos, Lakewood, and Bellflower and the Central Basin Municipal Water District for landscape irrigation and industrial uses.

San Jose Creek Water Reclamation Plant

The San Jose Creek WRP is the Districts' largest water reclamation facility, providing 100 mgd of capacity. The San Jose Creek WRP is located on a 39-acre site at the confluence of the San Gabriel River and San Jose Creek near the City of Industry. This parcel is located north of the Pomona Freeway (SR 60) and is bisected by I-605 into San Jose Creek WRP East and San Jose Creek WRP West (Figure 2-5). The East and West facilities function as two independent wastewater treatment plants. In addition to wastewater treatment facilities, the Districts' Joint Administrative Office is located on this parcel. Most of the land surrounding the site is developed with residential homes and apartments, but some adjacent areas are zoned for light commercial and industrial use. Additional facilities at the San Jose Creek WRP include a laboratory, equipment storage, and administrative offices.

Treatment facilities at the San Jose Creek WRP are the same as those described for the Los Coyotes WRP: primary sedimentation; secondary treatment via a conventional air-activated sludge process and clarification; tertiary treatment consisting of coagulation and gravity filtration; and chlorination and dechlorination. No facilities are provided at the San Jose Creek WRP for solids processing. All solids removed are returned to the JO "H" trunk sewer for conveyance to the JWPCP for processing.

San Jose Creek WRP discharges effluent to the San Gabriel River at two points: from San Jose Creek WRP West to the unlined portion of the San Gabriel River and from San Jose Creek WRP East to San Jose Creek (unlined), which is tributary to the San Gabriel River. Both plants can also discharge through an outfall pipeline that is approximately 12 miles long into a lined portion of the San Gabriel River, which eventually flows to the Pacific Ocean.

Effluent discharged to the unlined portion of the San Gabriel River is generally used for groundwater recharge. Relatively small amounts of reclaimed water are also reused for irrigation and industrial needs. The remainder of the effluent is discharged to the lined

portion of the San Gabriel River or, occasionally, to the Rio Hondo, which flows to the Los Angeles River and ultimately to the Pacific Ocean. Approximately half of the 79.2 mgd of water reclaimed at the San Jose Creek WRP in 1993 was reused. Most of the reused water (38.5 mgd) was used by the Water Replenishment District of Southern California (Water Replenishment District) for groundwater recharge. Effluent that is used for groundwater recharge or discharged to lined channels is partially dechlorinated, whereas effluent that is reused directly remains chlorinated.

Whittier Narrows Water Reclamation Plant

The Whittier Narrows WRP is the oldest of the inland WRPs (operations began in 1962). It is located in unincorporated Los Angeles County near the City of South El Monte, north of San Gabriel Boulevard, and between the Rio Hondo channel on the west and Rosemead Boulevard (SR 19) on the east (Figure 2-6). A treatment capacity of 15 mgd is currently provided on the 26.7-acre site leased to the Districts by the U.S. Army Corps of Engineers (Corps); the lease is valid through December 2020. The site is surrounded by open space. Because of its location within the Whittier Narrows Dam Flood Control Basin, the Whittier Narrows WRP is equipped with facilities that seal operations equipment in case of flooding.

Treatment facilities at the Whittier Narrows WRP are the same as those at the Los Coyotes and San Jose Creek WRPs: primary sedimentation; secondary treatment via a conventional air-activated sludge process and clarification; tertiary treatment consisting of coagulation and gravity filtration; and chlorination and dechlorination. No solids processing facilities are provided at the Whittier Narrows WRP. All solids removed are returned to the JO "B" trunk sewer for conveyance to the JWPCP for processing.

More than 99% of the reclaimed water produced at the Whittier Narrows WRP is reused. In 1993, most of this reclaimed water was used by the Water Replenishment District for groundwater recharge, and a small amount was used for irrigation by a local nursery. On most days, all reclaimed water from the Whittier Narrows WRP is reused. During periods of high storm flows or runoff, however, some water occasionally must be diverted to the lined portion of the Rio Hondo below the Rio Hondo Spreading Grounds.

Wastewater Conveyance System

The Districts own, operate, and maintain an interconnected network of trunk sewers that convey wastewater to JOS wastewater treatment facilities. Conceptually, the Districts' trunk sewer system forms the backbone of the regional sewer system. The JOS trunk sewer system includes:

- Joint Outfall (JO) trunk sewers, which are jointly owned by the JOD and are typically large-diameter (as great as 144 inches) trunk sewers, and

- Districts' trunk sewers, which are owned by individual districts and generally feed the larger JO trunk sewers.

The JO trunk sewers form the core of the regional sewer network and are owned, operated, and maintained by the JOD (Figure ES-1). The JO trunk sewers (JO "A" through JO "J") range in length from 6 miles to 82 miles and extend from areas throughout the JOS service area to the JWPCP. The basic function of most JO trunk sewers is to collect wastewater from Districts' trunk sewers (owned by individual districts) or from local laterals and to convey it downstream toward the WRPs or the JWPCP. Local sewers collect wastewater from individual properties and drain to the Districts' trunk sewers for conveyance to a JOS wastewater treatment facility. Local sewers and laterals are owned, operated, and maintained by the local jurisdiction where they are located. Major interceptor sewers generally divert predominately residential wastewater with relatively low dissolved solids to WRPs for reclamation or route wastewater with high dissolved solids concentrations to the JWPCP.

ALTERNATIVES SCREENING PROCESS

The Districts initiated the facilities planning process for the 2010 Plan by identifying a comprehensive set of conceptual alternatives to provide wastewater conveyance, treatment, and disposal services for 628 mgd of wastewater in the JOS through the planning period. The results of the GIS analysis conducted for the JOS service area allowed the Districts to determine which treatment plants could be expanded to accommodate future flows based on the locations of expected population growth and existing infrastructure.

Because of the geographic location of future flow increases, some JOS treatment plants are not projected to need expansion. Table 2-3 lists possible combinations of expansions at the JWPCP and JOS WRPs that could meet the plan objectives of a 628-mgd total system capacity and full secondary treatment of all JOS wastewater flows.

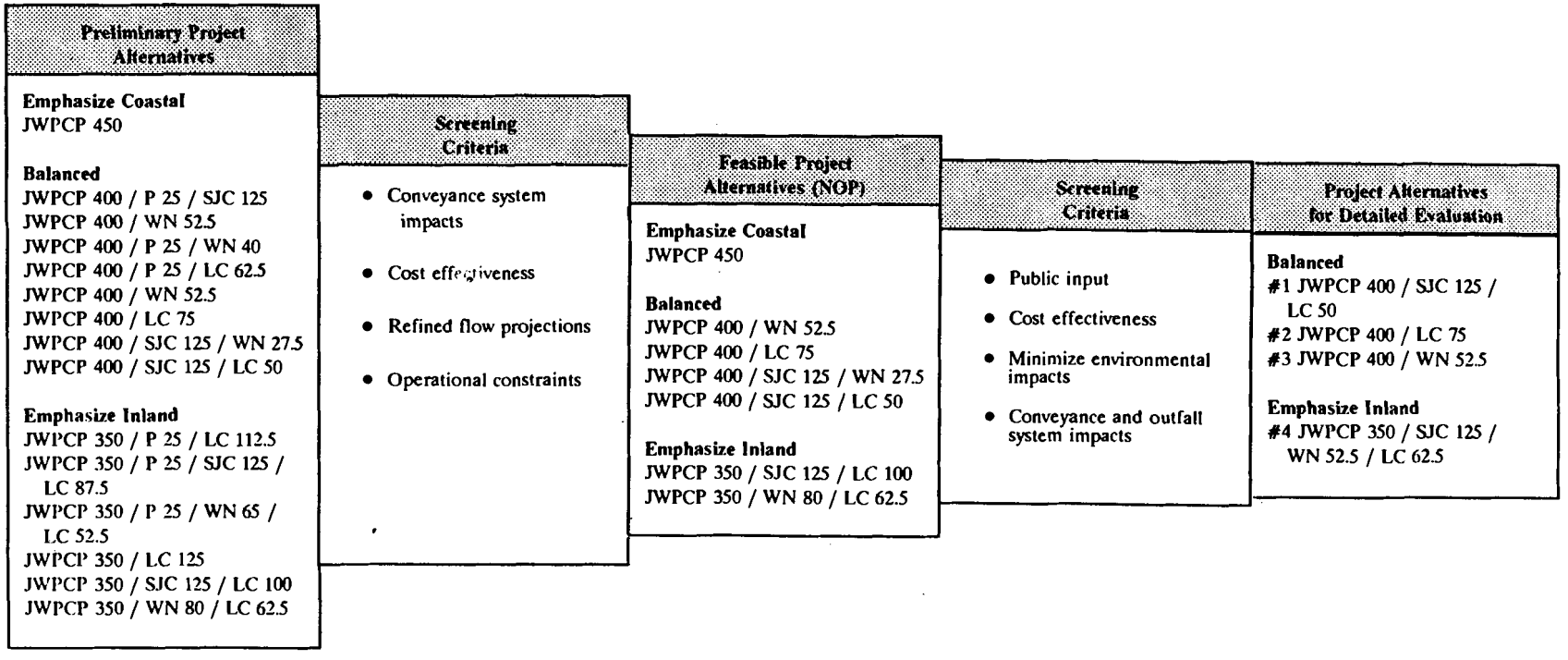
Preliminary Alternatives

Fourteen preliminary alternatives were originally considered by the Districts. These may be classified in three conceptual categories:

- Emphasize Coastal Treatment. The Districts would upgrade and expand the JWPCP to 450 mgd of secondary treatment capacity.

- Balanced Treatment. The Districts would upgrade the JWPCP to 400 mgd of secondary treatment capacity and expand inland treatment by 37.5 mgd in several combinations.

Table 2-3. Development of Project Alternatives for Detailed Evaluation



JWPCP	=	Joint Water Pollution Control Plant.	WN	=	Whittier Narrows WRP.
P	=	Pomona Water Reclamation Plant.	LC	=	Los Coyotes WRP.
SJC	=	San Jose Creek WRP.	NOP	=	the "Notice of Preparation" included these alternatives.

Figures shown are the resulting capacities of treatment plants in million gallons per day and are only indicated for facilities for which an expansion or a rerating of capacity is proposed.

- Emphasize Inland Treatment. The Districts would expand inland treatment by 87.5 mgd under several combined inland WRP expansions. The JWPCP would be upgraded to accommodate 350 mgd of secondary treatment capacity.

These preliminary alternatives are shown in Table 2-3.

Screening Criteria

Four alternatives emerged from the larger set of preliminary alternatives after being screened according to several criteria. These criteria included the following:

- conveyance system impacts,
- cost effectiveness.
- refined flow projections,
- operational constraints,
- public input,
- minimizing environmental impacts, and
- outfall systems impacts.

The four alternatives that were evaluated in detail in the 2010 Plan and this EIR are described below. A detailed description of the alternatives screening process is provided in the draft 2010 Plan.

DESCRIPTION OF ALTERNATIVES CONSIDERED IN THIS ENVIRONMENTAL IMPACT REPORT

The four feasible alternatives considered in detail in the EIR are summarized below and in Table 2-3. Additionally, CEQA requires that the No-Project Alternative be analyzed as a baseline for comparison.

- Alternative 1: Upgrade JWPCP/Expand Los Coyotes WRP/San Jose Creek WRP (Preferred Alternative)
- Alternative 2: Upgrade JWPCP/Expand Los Coyotes WRP
- Alternative 3: Upgrade JWPCP/Expand Whittier Narrows WRP
- Alternative 4: Upgrade JWPCP/Expand Los Coyotes WRP/San Jose Creek WRP/Whittier Narrows WRP
- No-Project Alternative

As described above under "Alternatives Screening Process", the four alternatives considered in detail in the 2010 Plan and this EIR were selected based on design criteria and several factors identified during the scoping phase of the project. These four alternatives include a range of options intended to meet the objectives of the 2010 Plan and to minimize environmental effects.

Project Elements Common to All Alternatives

Solids processing and biosolids management methods are identical for all alternatives. Primary solids and waste-activated sludge from inland WRPs will continue to be discharged to JOS sewers for conveyance to the JWPCP where they will be removed and processed along with solids generated in the JWPCP service area. Processed biosolids will continue to be hauled away via truck for offsite disposal and/or reuse. The total amount of solids generated in the JOS will be relatively constant for the different alternatives because the total volume of wastewater treated would be constant regardless of the alternative. Biosolids management will involve the disposal and reuse of the processed solids, described below under "Biosolids Management Plan".

Alternative 1: Upgrade JWPCP/Expand Los Coyotes WRP/ San Jose Creek WRP (Preferred Alternative)

Under Alternative 1, the preferred program, the Districts would:

- upgrade the JWPCP to full secondary treatment capacity of 400 mgd,
- expand the San Jose Creek WRP capacity from 100 mgd to 125 mgd, and
- expand the Los Coyotes WRP capacity from 37.5 mgd to 50 mgd.

The Districts would increase the permitted capacity of, and upgrade the level of, treatment at the JWPCP by constructing additional facilities to provide full secondary treatment capacity of 400 mgd. The total capacity of the inland WRPs would be expanded by 37.5 mgd to 228 mgd through expansions at the Los Coyotes and San Jose Creek WRPs to accommodate additional growth in the JOS. The Los Coyotes WRP capacity would be expanded by 12.5 mgd to a 2010 capacity of 50 mgd, and the San Jose Creek WRP capacity would be expanded by 25 mgd to a 2010 capacity of 125 mgd. Proposed modifications are described below.

Proposed Modifications to the Joint Water Pollution Control Plant

The modifications proposed for the JWPCP under Alternative 1 include all improvements needed to bring the JWPCP from partial to full secondary treatment by 2002, as required by the Consent Decree, and construction of additional solids processing facilities

needed to accommodate growth in the JOS through 2010 (Figure 2-7). These improvements would be made over an 11-year construction period (between 1996 and 2006) (Figure 2-8). As required by the Consent Decree, all construction needed to bring the JWPCP to full secondary treatment would be completed by June 2002. Proposed modifications of the JWPCP are described below.

Site Work. Preparation for site work would begin in 1994, and construction would occur from 1996 to 1998. Site work includes the removal of soil contaminated with DDT and sludge in areas at the JWPCP formerly used for sludge lagoons and composting. Additionally, certain oil wells and pipelines may need to be abandoned and removed.

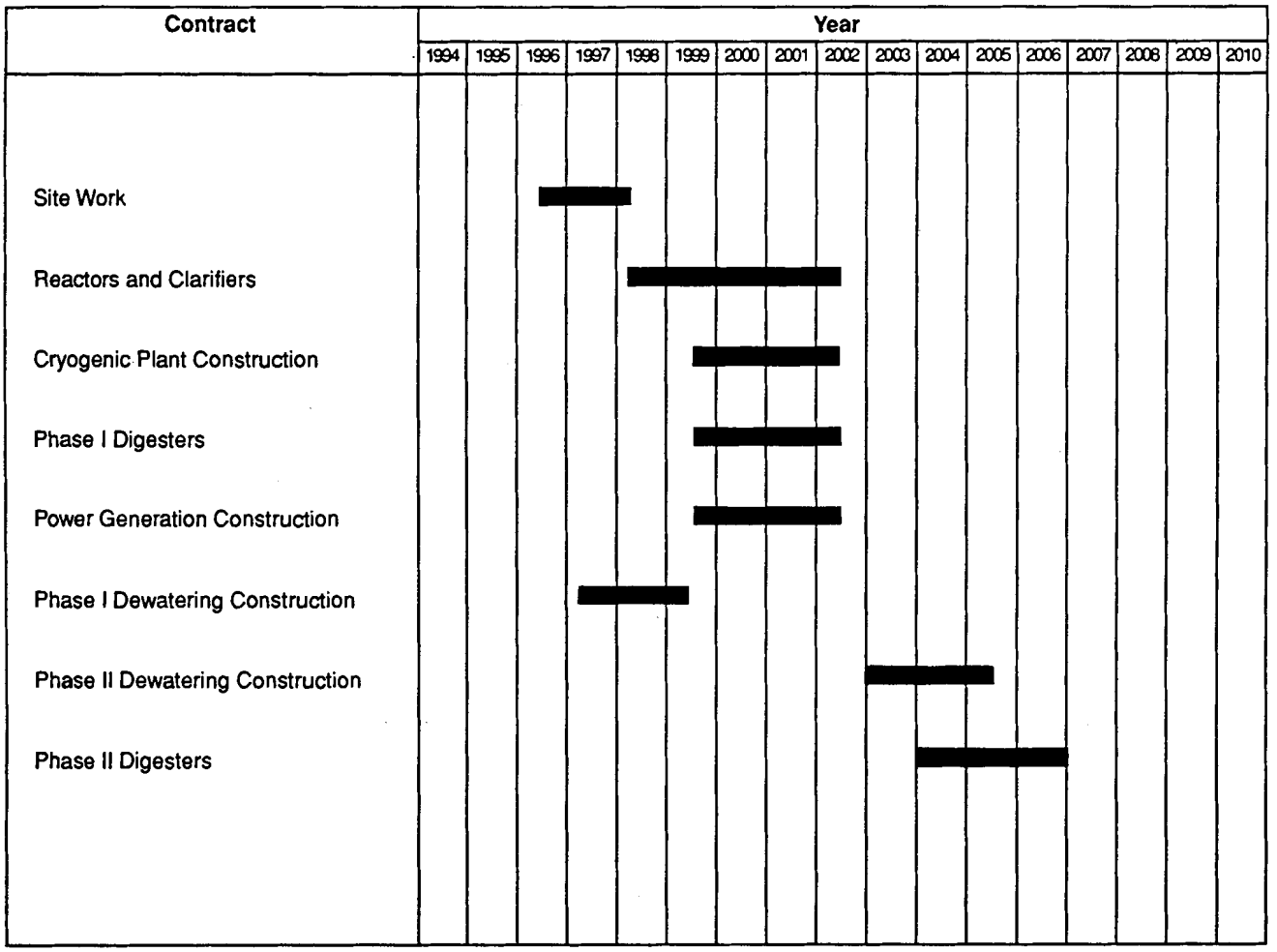
Reactors and Clarifiers. The Districts would begin preparing plans and specifications for constructing reactors and clarifiers in 1995 and construction would occur from 1998 through mid-2002. The Districts would also construct associated odor control systems, install secondary influent and effluent pumps, and upgrade or replace mixers on the existing reactors. An expanded laboratory and other buildings needed to support JWPCP operations would also be constructed from 2000 to 2002.

Cryogenic Plant Construction. The cryogenic plant produces pure oxygen for use in biological reactors. The Districts would purchase cryogenic equipment between 1997 and 1999 and construct and install the equipment from 1999 to 2002.

Phase I Digesters. The Districts would construct seven additional digesters north of the Atchison, Topeka, and Santa Fe railroad tracks, adjacent to the JWPCP marsh. During this period, the Districts would also construct the proposed digested sludge pump station 3, proposed storm drain pump station 4, proposed digester cleaning station 2, an additional boiler at boiler house 3, and proposed additional north flares and associated galleries. The south flares also would be relocated. The Districts would begin preparing plans and specifications in 1997, and construction would occur from 1999 through mid-2002. During the same period, odor control, pH control, and wastewater filtration facilities would be constructed or expanded.

Power Generation Construction. The Districts would construct and install power generation equipment, designed to produce electricity from digester gas, from 1997 to mid-2002.

Phase I Dewatering Construction. The Districts would install advanced scroll centrifuges, relocate and expand the existing facility for digested solids screening and dewatering currently located in centrifuge building 1, relocate the existing screening and dewatering building, expand the polymer storage and mixing facility, and construct new odor control stations for centrifuge buildings 1 and 2 to replace the existing odor control facilities and provide additional odor control for the new screening building. The Districts would begin preparing plans and specifications in 1995, and construction would occur from 1997 to 1999. In addition, a truck loading station, screening and grit-handling facilities, and primary odor control systems are planned for the same construction time frame.



COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

Jones & Stokes Associates, Inc.

Figure 2-8
Construction Schedule for the JWPCP

Phase II Dewatering Construction. As presently planned, the Districts eventually would install approximately 26 advanced scroll centrifuges and construct a new building and associated odor control facilities. The Districts would begin preparing plans and specifications in 2001, and construction would occur from 2003 to 2005.

Phase II Digesters. The Districts would demolish existing rectangular digesters and construct six new circular digesters. Also during this period, the Districts would construct the proposed digested sludge pump station 1, proposed storm drain pump station 5, proposed digester cleaning station 1, proposed odor control facilities, and a flare station and relocate standby propane facilities and associated galleries. The Districts would begin preparing plans and specifications in 2001 and construction would occur from 2004 to 2006.

Proposed Modifications to the Los Coyotes Water Reclamation Plant

Under Alternative 1, treatment capacity at the Los Coyotes WRP would be increased by 12.5 mgd to a total of 50 mgd. Expansion under this alternative would not require use of Districts property that is leased to the City of Cerritos, which currently operates the Ironwood Golf Course and driving range on this property. Proposed modifications at this plant include expansion of primary, secondary, and tertiary treatment facilities, which are shown in Figure 2-9. All other facilities at the Los Coyotes WRP are sufficient for the proposed operations expansion.

The Districts would construct two primary sedimentation tanks adjacent to and immediately west of the existing tanks. The Districts would add four additional aeration tanks south of the existing tanks, between the plant and SR 91, bringing the total to 16. There currently are 18 final sedimentation tanks; six additional tanks would be added immediately south of the existing tanks. Six new effluent filters are proposed to be added north of the existing filters and south of the maintenance building and storage yard. No additional chlorine contact tanks would be required under this alternative.

The Los Coyotes WRP produces reclaimed water that can be reused in accordance with Title 22 guidelines. Based on projects that are presently planned, the Districts have projected demands for reclaimed water under two scenarios, high reuse and low reuse. The additional 12.5 mgd of reclaimed water would be discharged to the San Gabriel River under both high- and low-reuse scenarios (unless additional demand developed over the planning period).

Proposed Modifications to the San Jose Creek Water Reclamation Plant

Alternative 1 involves the addition of 25 mgd of treatment capacity at the San Jose Creek WRP for a total capacity of 125 mgd. Expansion under this alternative would occur on the Districts' property west of I-605. Proposed modifications at the San Jose Creek WRP include expansion of primary, secondary, and tertiary treatment facilities, which are described

below (Figure 2-10). Existing operation and administration facilities at the San Jose Creek WRP are sufficient for the proposed expansion.

Four primary sedimentation tanks are proposed for addition south of the existing tanks. Eight aeration tanks would be added to the west, increasing the total to 20. Twelve additional final sedimentation tanks would be constructed west of the existing tanks. Two additional chlorine contact tanks would be constructed east and west of the existing tanks.

The San Jose Creek WRP produces reclaimed water that can be reused in accordance with Title 22 guidelines. Any reclaimed water produced at the San Jose Creek WRP that is not reused is discharged to the San Gabriel River and/or the Rio Hondo and flows to the Pacific Ocean. Under the high-reuse scenario, approximately two-thirds of the additional 25 mgd of reclaimed water produced at the San Jose Creek WRP would supplement groundwater recharge or other reuse during the summer months and approximately one-third would be discharged into the San Gabriel River. Under the low-reuse scenario, the entire additional flow would be discharged into the San Gabriel River.

Alternative 2: Upgrade JWPCP/Expand Los Coyotes WRP

Under Alternative 2, the Districts would:

- upgrade the JWPCP to full secondary treatment capacity of 400 mgd (same as Alternative 1);
- expand the Los Coyotes WRP capacity from 37.5 mgd to 75 mgd; and
- construct a relief sewer roughly parallel to the existing JO "B" and JO "H" trunk sewers beginning downstream of the San Jose Creek and Whittier Narrows WRPs and ending at the Los Coyotes Interceptor.

Proposed modifications to the JWPCP are described above under Alternative 1 and shown in Figure 2-7. Modifications to the Los Coyotes WRP under this alternative are described below.

Proposed Modifications to the Los Coyotes Water Reclamation Plant

Alternative 2 would involve the addition of 37.5 mgd in treatment capacity to the Los Coyotes WRP for a total capacity of 75 mgd. Expansion under this alternative would require the use of Districts' property currently leased to the City of Cerritos, which would displace the Ironwood driving range. Proposed modifications include expansion of primary, secondary, and tertiary facilities, as well as modification of maintenance and storage facilities. These modifications are shown in Figure 2-11 and are described below.

Six primary sedimentation tanks are proposed for construction under Alternative 2. The Districts would construct all six tanks north of the existing tanks where the driving range currently exists. Twelve additional aeration tanks and 18 final sedimentation tanks would also be constructed where the driving range currently exists. In addition, interim chlorine contact tanks would be constructed north of the proposed aeration and final sedimentation tanks in the existing driving range. These tanks would be constructed such that they may be converted to aeration and final sedimentation tanks during a future expansion.

The Districts would also construct 16 effluent filters adjacent to the existing filters. The new filters would be constructed immediately north of the existing filters. The installation of the effluent filters would require the relocation of the existing maintenance building and storage yard to the eastern portion of the site adjacent to I-605.

Under both high- and low-reuse scenarios, the entire 37.5 mgd of additional reclaimed water produced at the Los Coyotes WRP is projected to be discharged to the San Gabriel River.

Alternative 3: Upgrade JWPCP/Expand Whittier Narrows WRP

Under Alternative 3, the Districts would:

- upgrade the JWPCP capacity to full secondary treatment of 400 mgd (same as Alternative 1) and
- expand the Whittier Narrows WRP capacity from 15 mgd to 52.5 mgd.

Proposed modifications to the JWPCP are described above under Alternative 1 and shown in Figure 2-7. Modifications to the Whittier Narrows WRP under this alternative, which would increase inland WRP capacity by 37.5 mgd, are described below.

Proposed Modifications to the Whittier Narrows Water Reclamation Plant

Under Alternative 3, the treatment capacity at the Whittier Narrows WRP would be increased by 37.5 mgd to a total of 52.5 mgd. Because the Whittier Narrows WRP is located in the Whittier Narrows Flood Control Basin on land owned and controlled by the U.S. Department of the Army (the Districts operate the Whittier Narrows WRP under a 60-year lease), any proposed expansion will need to be protected from flooding and cannot interfere with the operation of the Whittier Narrows Dam and Flood Control Basin.

Expansion under this alternative would displace the nursery currently leasing the property east of the plant site and require approximately 90,000 cubic yards of fill to elevate the proposed expansion site above the 100-year flood level for flood protection. Proposed modi-

fications include expansion of primary, secondary, and tertiary facilities and improvements of existing operations and administrative facilities (Figure 2-12).

Under Alternative 3, a new pump station with two additional influent pumps would be constructed in the southernmost portion of the Whittier Narrows WRP, south of the existing access road. Five additional primary sedimentation tanks would be constructed immediately north of these proposed facilities. The expansion would require addition of nine aeration tanks, a new air compressor building, and 12 new final sedimentation tanks. A new pump station would convey secondary effluent to 12 additional effluent filters. Two additional chlorine contact tanks would be constructed in the northern portion of the existing nursery area.

A new road would be constructed on the proposed fill area surrounding the modifications to provide access to the new facilities. The Districts would construct one building to store the chemicals and another to mix polymers.

The Whittier Narrows WRP produces reclaimed water that can be reused in accordance with Title 22 guidelines. Under the high-reuse scenario, the entire 37.5 mgd of additional reclaimed water would be used for groundwater recharge and local irrigation. Under the low-reuse scenario, approximately 95% of the additional reclaimed water would be recharged or reused and 5% could be discharged to the Rio Hondo channel.

Alternative 4: Upgrade JWPCP/ Expand Los Coyotes WRP/ San Jose Creek WRP/Whittier Narrows WRP

Under Alternative 4, the Districts would:

- upgrade the JWPCP to full secondary treatment capacity of 350 mgd;
- expand the Los Coyotes WRP capacity from 37.5 mgd to 62.5 mgd;
- expand the San Jose Creek WRP capacity from 100 mgd to 125 mgd (same as Alternative 1);
- expand the Whittier Narrows WRP capacity from 15 mgd to 52.5 mgd (same as Alternative 3); and
- construct a sewer approximately 2 miles long, roughly parallel to the existing JO "B" trunk sewer between the Whittier Narrows WRP and the juncture of the JO "B" and JO "H" trunk sewers immediately downstream of the Whittier Narrows WRP. This sewer would route solids removed at the Whittier Narrows WRP to the JWPCP.

Under this alternative, the maximum quantity of wastewater would be treated at the inland WRPs. According to JOS flow projections for 2010, the maximum volume of flow that may be diverted to and treated at the inland WRPs is approximately 281 mgd. The maximum capacity of the inland WRPs is, therefore, approximately 280 mgd. Under this alternative only, secondary treatment facilities with 150-mgd capacity would be constructed at the JWPCP, making the 2010 capacity of the JWPCP 350 mgd (Figure 2-7). The total capacity of the inland WRPs would be expanded by 87.5 mgd to accommodate additional growth in the JOS service area.

Proposed modifications to the Los Coyotes WRP under this alternative are described below. Proposed modifications to the San Jose Creek WRP are described above under Alternative 1 and are shown in Figure 2-10. Proposed modifications to the Whittier Narrows WRP are described above under Alternative 3 and shown in Figure 2-12.

Proposed Modifications to the JWPCP

Modifications required to bring the JWPCP to full secondary treatment would be almost identical to those proposed under Alternative 1, except that the area proposed for expansion for the aeration and secondary settling tanks would include one less 50-mgd module (Figure 2-7).

Proposed Modifications to the Los Coyotes Water Reclamation Plant

Under Alternative 4, 25 mgd of treatment capacity would be added at the Los Coyotes WRP for a total of 62.5 mgd. This would require use of the Districts' land currently used for the driving range. Proposed modifications involve expansion of primary, secondary, and tertiary facilities, as well as modifications to maintenance and storage facilities. These modifications are shown in Figure 2-13 and are described below.

Under Alternative 4, four primary sedimentation tanks would be added, two to the west of the existing tanks, and two to the north of the existing tanks between the influent pumping plants and the compressor building. The Districts would add eight aeration tanks and 12 final sedimentation tanks in the area now occupied by the driving range. In addition, interim chlorine contact tanks would be constructed immediately north of the proposed aeration and final sedimentation tanks in the existing driving range. These tanks would be constructed so that they could be converted to aeration and final sedimentation tanks during a future expansion.

The Districts would construct 12 effluent filters adjacent to the existing filters. The Districts would construct two additional chlorine contact tanks to disinfect the additional flow. The Districts would construct the new chlorine contact tanks immediately north of the proposed aeration and final sedimentation tanks on the Districts' property currently used for the driving range. As under Alternative 2, the installation of the effluent filters would require the relocation of the existing maintenance building and storage yard to the east portion of the site adjacent to I-605.

The additional 25 mgd of reclaimed water produced at the Los Coyotes WRP would be discharged to the San Gabriel River under both high- and low-reuse scenarios.

No-Project Alternative

CEQA requires the lead agency to consider a no-project alternative as a baseline when evaluating project alternatives in an EIR. Under the No-Project Alternative, the Districts would not construct any new JOS facilities to upgrade the level of treatment or accommodate growth in the JOS service area. Under the No-Project Alternative, JOS facilities would be insufficient to treat projected demands, and overflows could occur. Additionally, implementation of this alternative would not achieve compliance with the Consent Decree; therefore, the No-Project Alternative is not a viable alternative.

Biosolids Management Plan

Based on projections developed for the 2010 Plan, the dry weight of biosolids is estimated to increase by 77% between 1994 and 2010. This increase is attributable in part to the upgrade of the level of treatment at the JWPCP and in part to the projected increase in JOS flows to 628 mgd. The Districts expect that 575 dry tons per day of biosolids will be produced in the JOS in 2010. The equivalent wet weight of biosolids that must be managed through disposal and/or reuse depends on dewatering performance. Between 2,000 and 2,400 wet tons per day of biosolids are anticipated to be generated in 2010.

The Districts' biosolids management plan outlines the manner in which expected quantities of biosolids will be reused or disposed of. The Districts will seek proposals from contractors to manage a substantial portion of the disposal and reuse of biosolids and will continue codisposal with municipal solid waste at the Puente Hills Landfill. The Districts could also develop their own offsite facilities, similar to those described herein, which would meet the same types of requirements as described below for contractors. Trucks will continue to be used to transport biosolids to offsite facilities.

In addition to codisposal at the Puente Hills Landfill, the Districts currently haul biosolids to four remote offsite locations: Kellogg Supply, Inc., in Thermal; Recyc, Inc., in Corona; Pima Gro Systems in Thermal; and Ag Tech Company in Yuma, Arizona. Future potential sites include, but are not limited to:

- several land application sites within approximately 250 miles of the JWPCP in Kern and Kings Counties;
- the Bolo Station Landfill, located in San Bernardino County (approximately 260 miles from the JWPCP);

- the Eagle Mountain Landfill, located in Riverside County (approximately 230 miles from the JWPCP); or
- the Mesquite Regional Landfill, located in Imperial County (approximately 230 miles from the JWPCP).

Management Options

The biosolids management plan addresses existing methods (codisposal with municipal solid waste, composting, and direct land application) and a limited range of new alternatives for disposal or reuse (alternative daily landfill cover, construction materials, and noncompost fertilizers).

Landfill Codisposal with Municipal Solid Waste. The Districts will continue to utilize the Puente Hills Landfill, which is located approximately 30 miles from the JWPCP, for a portion of the biosolids. The landfill, a lined site with a leachate collection system, is permitted to accept 72,000 tons of solid waste per week. Methane gas is recovered and used for energy generation. As required by 40 CFR 503, EPA's Standards for the Use and Disposal of Sewage Sludge (EPA Part 503), biosolids codisposed of at the Puente Hills Landfill are nonhazardous and pass the paint filter test for free liquids, and the landfill complies with all regulatory requirements.

The proximity of the Puente Hills Landfill to the JWPCP makes this a continually viable option for disposal because of the short hauling distances. For emergency backup, a 2,400-acre sanitary landfill in Carbon County, Utah, is permitted to accept biosolids for disposal and is projected to have sufficient space for as long as 40 years.

Composting. The Districts will continue to contract with private operators to haul biosolids offsite for composting. Composting sites may include the existing sites in Temescal Canyon and Thermal and new sites that may be used in addition to or as replacements for existing sites. Biosolids can be composted with other materials or alone for different end product uses. Generally, the end product is used on agricultural land or in horticulture, or is bagged for home use. The composting process further reduces the presence of pathogens and stabilizes organic material to reduce odors and vector attraction potential.

The Districts' existing contracts are relatively short term but can be renewed. Compliance with EPA Part 503 standards is required for operation of composting facilities and reuse of biosolids. The California Integrated Waste Management Board (CIWMB) is expected to adopt composting facility permit standards in the next year. Other federal, state, and local regulations also apply to specific sites.

Direct Land Application. The Districts will continue to contract with private operators to haul biosolids offsite for direct land application to supply crop nutrients and soil amendments. The current site in Yuma, Arizona, is contracted to accept as much as 2,000 wet tons of biosolids per week. Several additional sites have recently been permitted or are in the process of obtaining permits for direct land application. Other sites will be considered as

they become available. Compliance with EPA Part 503 standards is required for all land application programs. State and local requirements could also apply to specific sites.

New Options. The Districts are considering expanding the range of biosolids reuse methods and have identified three preliminary management options that could be used during the period covered by the 2010 Plan:

- Alternative Daily Cover. Biosolids can be combined with alkaline and acidic materials to produce a soil-like material suitable for use as a daily cover at solid waste landfills. Currently, more than 9,000 cubic yards per day of natural soils are used for cover in eight Los Angeles County landfills. The CIWMB would allow up to 25% of the total daily cover material to be made from biosolids, which would amount to reuse of 1,000-2,000 wet tons per day of biosolids.

- Construction Materials. Although use of this method is not as widespread as the above options, using biosolids in the manufacture of cement, brick, and as aggregate is being considered industrywide. Biosolids have also been tested as an additive to control emissions from cement kilns. These management options could become available to the Districts within the planning period.

- Noncompost Fertilizers. Similar to the construction materials option, the development of noncompost soil amendment or fertilizer is currently not widespread but could potentially be available before 2010.

Measures to Ensure Environmental Compliance

The Districts would only consider proposals from contractors that have obtained or will have obtained prior to startup all required local, state, and federal permits and have complied with CEQA, NEPA, or other applicable environmental requirements; these include EPA Part 503, which contains self-implementing regulations for land application, surface disposal, and incineration of biosolids, and which also requires a permit under the same circumstances. The contractor would be required to comply with the applicable regulations and make a determination of whether a permit application is required. At new disposal or reuse sites, the contractor would also be required to demonstrate that any impacts associated with operation of the site are mitigated, that proper environmental documentation has been prepared, and that regulatory agencies have been consulted.

To enforce requirements applicable to the contractors, the Districts would require contractors to submit periodic reports demonstrating compliance with permits and commitments. Reports would present data to demonstrate conformance with all regulatory agency requirements and must include discussion of:

- processing and reuse activities, including site management practices;
- sources and quantities of biosolids;
- quantities and uses of end products; and
- analytical results and compliance certification.

Additionally, the Districts would conduct periodic inspections of the reuse or disposal sites to ensure that the contractors conform with commitments. Inspections shall be made for compliance with requirements for:

- odor generation and control,
- dust control,
- evidence of vectors,
- record keeping,
- public access, and
- traffic restrictions for the site.

Regulatory agency oversight and local requirements are established for affected resources to avoid or reduce significant environmental effects of each of the viable management options available to the Districts.

2010 PLAN COSTS

The Districts have prepared cost estimates for each of the proposed projects based on historic construction, design, and operation and maintenance costs for similar facilities. Estimated project costs (in 1994 dollars) for each of the 2010 Plan alternatives are shown in Table 2-4. Estimated project costs have been converted to an equivalent annual cost, assuming that proposed facilities are amortized over 20 years, to allow comparison of project alternatives. Based on equivalent annual costs, project alternatives listed in order of increasing cost are Alternative 1, Alternative 2, Alternative 3, and Alternative 4. Table 2-4 summarizes project costs for the alternatives. Because the solids processing element is common to all four alternatives, the cost for solids processing facilities must be added to the cost of each alternative.

RELATED PROJECTS

Several other independent projects or studies are ongoing but are not part of the 2010 Plan. The findings from these projects or studies, however, will affect the operation of JOS facilities.

- **Beneficial reuse of reclaimed water**: This study, which is required by the Consent Decree, will focus on actions to expand the beneficial reuse of reclaimed water in the JOS service area with the expressed intent to work toward a goal of attaining and maintaining a level of beneficial reuse of 150 mgd of reclaimed water by December 31, 2002. The plan must be completed and submitted to EPA by December 31, 1995.

Table 2-4. Comparison of Project Costs for Alternatives

Alternative	Capital Cost	Annual O&M 2010	Equivalent Annual Costs
Alternative 1	$254,200,000	$13,800,000	$39,700,000
Alternative 2	272,800,000	14,200,000	42,000,000
Alternative 3	273,400,000	14,400,000	42,200,000
Alternative 4	323,800,000	16,400,000	49,400,000
JWPCP solids processing (common element)	201,600,000	14,800,000	35,400,000

Notes: All costs are in 1994 dollars. Equivalent annual costs based on 20-year amortization.

O&M = operations and maintenance.

- **Sewer rehabilitation and relief**: Some of the reinforced concrete sewers continue to undergo severe sulfide corrosion, necessitating major rehabilitation of sewers in the wastewater conveyance system. In addition, continued growth in the JOS service area and the resulting increases in wastewater flow necessitate sewer relief projects. The Districts have an ongoing program to continually monitor and study the need for rehabilitation and relief work. Specific sewer rehabilitation and relief projects will have individual environmental impact assessments.

- **District No. 28 WRP Outfall Sewer**: An outfall sewer is scheduled to be constructed to tie the District No. 28 WRP located in La Cañada Flintridge into the JOS. This outfall will also provide service to local residences in District No. 34. On July 1, 1995, District Nos. 28 and 34 are expected to become members of the JOS, increasing the number of JOS Districts from 15 to 17. Also at that time, ownership of the District No. 28 WRP, a 0.2-mgd extended aeration treatment facility, will be transferred from District No. 28 to the JOS, and this WRP will become the seventh wastewater treatment plant in the JOS.

  A separate project report and environmental document have been prepared for this outfall sewer project. Construction is expected to begin in January 1995. The maximum flow Districts Nos. 28 and 34 are expected to contribute to the JOS is approximately 1.0 mgd. Because flow from these Districts will have a negligible effect on JOS facilities, it was not included in JOS flow projections and was, therefore, not considered during the development and screening of system alternatives.