CHAPTER 7

SUMMARY OF RECOMMENDED PROJECT

Joint Water Pollution Control Plant

Proposed WRP Expansions

Biosolids Management

Related Projects

Project Financing

CHAPTER 7 SUMMARY OF RECOMMENDED PROJECT

As stated in Chapter 6, Alternative 1 is the preferred project alternative. Hence, the preferred project calls for 400 mgd of secondary treatment capacity at the JWPCP, a 25 mgd expansion of the SJCWRP, and a 12.5 mgd expansion of the LCWRP.

7.1 JOINT WATER POLLUTION CONTROL PLANT

7.1.1 PROPOSED JWPCP TREATMENT FACILITIES

Proposed facilities at the JWPCP were described in Chapter 6. In summary, proposed JWPCP facilities include: solids processing facilities; power generation facilities; support facilities including expanded laboratory facilities, a washwater filtration facility, and new and expanded change rooms and operator training rooms; and wastewater treatment facilities including modifications and upgrades to headworks facilities and centrate treatment facilities, expanded secondary treatment facilities including WAS thickening facilities, and improved odor control facilities. In addition, the proposed work at the JWPCP includes subsurface investigation and remediation which were also described in Chapter 6. The footprint of proposed facilities at the JWPCP is illustrated in Figure 7.1-1. Detailed design criteria for proposed JWPCP facilities are presented in Table 7.1-1.

In general, design of proposed JWPCP facilities will begin in 1995 and the design of reactors and clarifiers will be completed by December 31, 1997, construction of proposed JWPCP secondary treatment facilities will begin by April 30, 1998 and be completed by June 30, 2002, startup of JWPCP full secondary treatment facilities will commence by June 30, 2002, and the JWPCP will achieve full compliance with Section 301(b) of the CWA by December 31, 2002 as required by the Consent Decree. A more detailed schedule which presents proposed scheduling and phasing of project elements necessary to meet the general time constraints outlined above is presented in Figure 7.1-2.

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Table 7.1-1
DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010

Process	Capacity
Plant Flow	
Avg [mgd]	400
Peak Sanitary [mgd]	540
Sustained High Daily (12 hrs) [mgd]	500
Peak Storm [mgd]	630
Influent Wastewater Characteristics	
Suspended Solids [mg/L]	530
Suspended Solids [lb/day]	1,760,000
BOD [mg/L]	425
BOD [lbs/day]	1,420,000
Influent	
Inlet Works No. 1-Pumps	
Number	5 (1 standby)
Capacity per Pump [mgd]	57.6
Lift [ft]	6
Power per Pump [HP]	150
Inlet Works No. 1-Gravity	
Gravity Influent [mgd]	265
Inlet Works No. 2-Pumps	
Number	4 (1 standby)
Capacity per Pump [mgd]	78
Lift [ft]	6
Power per Pump [HP]	200
Primary Effluent Pumps	
Number	5 (all standby)
Capacity per Pump [mgd]	122
Lift [ft]	33
Power per Pump [HP]	1,100
Secondary Influent Pumps	
Number	5
Capacity per Pump [mgd]	135
Lift [ft]	31
Power per Pump [HP]	1,180
Secondary Effluent Pumps	
Number	5
Capacity per Pump [mgd]	135
Lift [ft]	33
Power per Pump [HP]	1,000
Emergency Effluent Pumps	
Number	2
Capacity per Pump [mgd]	50
Lift [ft]	40
Power per Pump [HP]	400
Effluent Tunnels	
8 Foot Tunnel	
Length [ft]	32,000
Material	Reinforced Concrete
12 Foot Tunnel	
Length [ft]	32,000
Material	Reinforced Concrete
Ocean Outfalls	
No. 1	Not in Service
No. 2	
Inside Diameter [inches]	72
Total Length [ft]	7,048
Diffuser Length [ft]	648
Avg Diffuser Depth [ft]	155
Number & Diameter of Ports [inches]	40 @ 9 18 @ 8
Spacing of Ports	2 every 24 ft.
Capacity [mgd]	106
No. 3	
Inside Diameter [inches]	90
Total Length [ft]	10,300
Diffuser Length [ft]	2,400
Avg Diffuser Depth [ft]	203
Number & Diameter of Ports [inches]	2 @ 15 32 @ 7.5 68 @ 6.5
Spacing of Ports [ft]	24
Capacity [mgd]	164

Table 7.1-1
DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010 (Continued)

Process	Capacity
Ocean Outfalls (continued)	
No. 4	
Inside Diameter [inches]	120
Total Length [ft]	11,880
Diffuser Length [ft]	4,440
Avg Diffuser Depth [ft]	178
Number & Diameter of Ports [inches]	2 @ 6
	228 @ 3.6
	176 @ 3.2
	112 @ 3.0
	96 @ 2.75
	96 @ 2.55
	32 @ 2.00
Spacing of Ports [ft.]	6
Capacity [mgd]	349
Preliminary Treatment	
Bar Screens	
Type	Vertical bars, 1" spacing
Location	6 @ Inlet Works No. 1
	3 @ Inlet Works No. 2
Grinders	
Type	In-line
Quantity	6 (all standby)
Screenings Handling Facility	
Screenings Pump	Chopper
Quantity	2
Initial Dewatering	Integrated Screw Press
Quantity	2
Final Dewatering	Hydraulic Ram Press
Quantity	2
Screenings Storage	Covered Roll-off Bin
Quantity	2
Aerated Grit Chambers	
Number	6
Shape	Rectangular
Aeration Compressor [HP]	6 @ 150
Detention Time [min]	5
Slurry Pumps	Recessed Impeller
Quantity	12

Process	Capacity
Preliminary Treatment (continued)	
Grit Handling Facilities	
Initial Separator	Vortex Classifier
Quantity	6
Grit Concentrator	Integrated Clarifier/Conveyor
Quantity	6
Grit Storage	Covered Roll-off Bins
Quantity	6
Primary Treatment	
Primary Sedimentation Tanks	
Type	Rectangular
Number	52
Avg Overflow Rate [gpd/ft^2]	1,250-1,690
Detention Time [hrs]	1.3
Suspended Solids Removal [%]	70
Solids Conveyors	Chain and Flight
Number	26
Solids Collector Pumps	Recessed Impeller
Number	18
Secondary Treatment	
Influent Characteristics	
Suspended Solids [[mg/L]	160
Suspended Solids [lb/day]	534,000
COD [mg/L]	460
COD [lb/day]	1,535,000
Biological Reactors	
Number of 50 mgd Trains	8
Number of Liquid Stages per Train	4
Number of Gas Stages per Train	12
Mixing	Surface Aerators
Water Depth [ft]	15
Solids Recycle [%]	40
Avg Detention Time (V/Q) [hrs]	2.5
Avg Detention Time (V/Q+R) [hrs]	1.8
Oxygen Generation Plants	
Type	Cryogenic
Number of Plants	4
Capacity per Plant [tons/day]	150
Oxygen Purity	98%
Number of Air Compressors	5
Compressor Load [HP]	2,500
Number of Liquid Oxygen Storage Tanks	3
Liquid Oxygen Capacity per Tank [tons]	215

Table 7.1-1
DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010 (Continued)

Process	Capacity
Secondary Treatment (continued)	
Final Sedimentation Tanks	
14 Foot Deep Rectangular Tanks	
Number	104
Length [ft]	167
Width [ft]	21
Avg Overflow Rate [gpd/ft^2]	548
Peak Sanitary Overflow Rate [gpd/ft^2]	739
Avg Detention Time (w/40% R) [hrs]	3.3
16 Foot Deep Rectangular Tanks	
Number	104
Length [ft]	167
Width [ft]	21
Avg Overflow Rate [gpd/ft^2]	548
Peak Sanitary Overflow Rate [gpd/ft^2]	739
Avg Detention Time (w/40% R) [hrs]	3.7
Chlorination	
Chlorine Dose	
Avg Dose [mg/L]	10.0
Max Dose [mg/L]	17.0
Chlorine Usage	
Avg Flow @ Avg Dose [lb/day]	33,000
Avg Flow @ Max Dose [lb/day]	57,000
Peak Sanitary Flow @ Max Dose [lb/day]	77,000
Peak Storm Flow @ Max Dose [lb/day]	89,000
Lime Usage	
Avg Flow @ Avg Dose [lb/day]	26,000
Peak Storm Flow @ Max Dose [lb/day]	74,000
Chlorine Unloading Facility	
Number of Railcars	6
Size [tons]	90
Max Flow Rate [lb/hr]	15,000
Railcar Enclosure	
Height [ft]	35
Length [ft]	190
Number of Cars	6

Process	Capacity
Chlorination (continued)	
Lime Facility	
Number of Railcars	2
Size [tons]	95
Unloading Capacity [tons/hr]	30
Lime Storage Tanks	3
Storage Capacity [tons]	555
Number of Lime Slakers	2
Capacity per Slaker [lb/hr]	5,500
pH Control of Secondary Effluent	
Secondary Effluent Characteristics	
Calcium Hardness [mg/L]	170
Magnesium Hardness [mg/L]	97
Alkalinity [mg/L]	251
pH	6.8
Carbonic Acid [mg/L]	182
Lime Usage as CaO	
Avg Dose [mg/L]	28
Avg [ton/day]	47
Peak Sanitary [ton/day]	63
Peak Storm [ton/day]	74
Waste Activated Sludge (WAS) Thickening	
WAS Flow	
Avg Flow [gpm]	5,600
Max Flow [gpm]	8,500
WAS Dry Solids Production	
Avg Solids Load [lb/day]	550,000
Max Solids Load [lb/day]	830,000
Dissolved Air Flotation (DAF) Tanks	
Type	Rectangular
Number	10
Solids Loading @ Avg Rate [lb/hr-ft^2]	5.0
Overflow Rate @ Avg Flow [gpm/ft^2]	1.2
Loading Rate (w/ Recycle) [gpm/ft^2]	3.9
Air to Solids Ratio @ Avg Flow	0.026
Thickened WAS Pump Station	
Number of Pumps	4
Capacity per Pump [gpm]	800
Pressure per Pump [psig]	80

Table 7.1-1
DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010 (Continued)

Process	Capacity
Anaerobic Digestion	
Primary Solids Flow [mgd]	4.6
Primary Solids Concentration [% TS]	3.2
Primary Solids [ton/day]	620
Primary Volatile Solids [%]	72
TWAS Flow [mgd]	1.2
TWAS Total Solids [%]	5.6
TWAS [ton/day]	275
TWAS Volatile Solids [%]	78
Digestion Tanks	
Number of Circular Tanks	29
Capacity per Tank [ft^3]	500,000
Total Digestion Capacity [ft^3]	14,500,000
Detention Time (1 O/S) [days]	18
Temperature [°F]	95
Loading Rate [lb VSS/ft^3 day]	0.095
Percent VSS Destruction [%]	48
Gas Production (ft^3/lb VSS Destroyed)	16.7
Ferrous Chloride [gpd]	12,000
Heating System	Steam Injection
Mixing System	Draft Tube w/Gas Recirculation
Digested Sludge Wet Well	Digester Z
Capacity [ft^3]	500,000
Digester Cleanings	
Number of Stations	2
Type of Screens	Inclined Static
Number of Screens	10
Capacity per Screen [gpm]	300
Type of Grit Removal	Vortex
	Classifier/Clarifier
Number	2
Capacity [gpm]	1,500
Solids Dewatering	
Avg Digested Solids Flow [gpm]	4,100
Max Digested Solids Flow [gpm]	5,100
Digestion Solids Concentration [%]	2.4

Process	Capacity
Solids Dewatering (continued)	
Rotary Screens	
Number	14
Cylinder Diameter [inch]	25
Hydraulic Flow Rate per Screen [gpm]	300
Screen Opening [inch]	0.10
Thickened Centrate	
Avg Flow [gpm]	400
Solids Concentration [%]	4.0
Advanced Dewatering Centrifuges	
Avg Flow to Centrifuges [gpm]	4,500
Number	26
Bowl Diameter [inch]	36
Bowl Height [inch]	144
Feedrate per Centrifuge [gpm]	250
Polymer Dose [lb/ton]	15
Biosolids Storage and Loading	
Storage Silos	
Number	18
Biosolids Density [lb/ft^3]	65
Capacity per Silo [tons]	510
Days of Storage	3.8
Truck Loading Stations	
Number	3
Storage Capacity per Station [ton]	90
Loading Rate [ton/hr]	175
Solids Processing Polymer Facility	
Concentrated Polymer Storage Tanks	
Number	7
Volume [gal]	4 @ 34,000 3 @ 10,000
Total Volume [gal]	166,000
Polymer Usage	
Centrifuge Dewatering [lb/day]	10,000
DAF [lb/day]	1,100
Centrate Treatment [lb/day]	600
Total Usage [lb/day]	11,700
Polymer Mix Feed Tanks	
Number of Tanks	4
Capacity per Tank [gal]	15,800
Polymer Flow @ 0.25% [gpm]	370

Table 7.1-1
DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010 (Continued)

Process	Capacity
Solids Processing Polymer Facility (continued)	
Polymer Use Tanks	
Number of Tanks	6
Capacity per Tank [gal]	2,500
Centrate Treatment	
Centrate Flow [gpm]	4,800
Centrate Solids [mg/L]	3,500
Centrate Solids Loading [lb/day]	192,000
Thickened Centrate	
Avg Centrate Concentration [%]	4.0
Minimum Centrate Concentration [%]	3.5
Avg Thickened Centrate Flow [gpm]	400
Max Thickened Centrate Flow [gpm]	460
Dissolved Air Flotation	
Number of Tanks	3
Solids Loading @ Avg Rate [lb/hr-ft^2]	7.8
Overflow Rate @ Avg Flow [gpm/ft^2]	4.7
Washwater Systems	
Filtration System	
Washwater Flow [mgd]	6
Type	Deep Bed Anthracite
Number	4
Length [ft]	15
Width [ft]	15
Media Depth [ft]	6
Surface Loading Rate [gpm/ft^2]	6.20
Disinfection	
Number of Contact Tanks	3
Capacity per Tank [ft^3]	6,400
Length per Tank [ft]	40
Width per Tank [ft]	16
Depth per Tank [ft]	10
Calcium Hypochlorite Dosage [mg/L]	25
Contact Time	
@ 1,600 gpm [min]	90
@ 4,167 gpm [min]	35
Pumping System	
Number of Pump Stations	1
Number of Pumps	5
Capacity per Pump [gpm]	3 @ 500 2 @ 1,000
Lift [ft]	231

Process	Capacity
Washwater Systems (continued)	
Firewater System (Secondary & Solids Proc.)	
Number of Pumps	1
Capacity per Pump [gpm]	2,500
Lift [ft]	180
Firewater System (Primary)	
Number of Pumps	1
Capacity per Pump [gpm]	2,500
Lift [ft]	140
Odor Control Facilities	
CFG #1, Sludge Screenings & Dewatering	
Flow [cfm]	30,000
Scrubber Type	Wet Scrubber
CFG #2 and Conveyor Gallery	
Flow [cfm]	40,000
Scrubber Type	Wet Scrubber
Sludge Storage Silos	
Flow [cfm]	40,000
Scrubber Type	Venturi
Centrate Treatment	
Flow [cfm]	5,000
Scrubber Type	Wet Scrubber
Dissolved Air Flotation	
Flow [cfm]	10,000
Scrubber Type	Carbon
E-F Reactor Inlet Channel	
Flow [cfm]	5,000
Scrubber Type	Carbon
G-H Reactor Inlet Tunnel	
Flow [cfm]	5,000
Scrubber Type	Carbon
I Reactor Tunnel	
Flow [cfm]	5,000
Scrubber Type	Carbon
Central Odor Include Grit Facilities #1	
Flow [cfm]	42,000
Scrubber Type	Wet Scrubber and Carbon
Digester Cleaning North	
Flow [cfm]	15,000
Scrubber Type	Carbon

Table 7.1-1

DETAILED DESIGN CRITERIA FOR PROPOSED FACILITIES AT JWPCP: 400 mgd PLANT CAPACITY YEAR 2010 (Continued)

Process	Capacity
Odor Control Facilities (continued)	
E1 Skimmings	
Flow [cfm]	11,000
Scrubber Type	Wet Scrubber and Carbon
E2/E3 Skimmings	
Flow [cfm]	22,000
Scrubber Type	Wet Scrubber and Carbon
Digester Cleaning #1 Modification	
Flow [cfm]	8,000
Scrubber Type	Carbon
Power Generation	
Digester Gas Production [MMSCFD]	10.6
Digester Steam Requirement [lb/hr]	25,000-62,000
Digester Gas Usage	
Power Generation [% of Total]	95.4
SIPS and Other [% of Total]	4.6
Power Generating Facility	
Max Heat to 2 GTs @ TEF [MMBTU/hr]	165
Max Heat to 1 New GTs [MMBTU/hr]	93
System Total [MMBTU/hr]	258
Gross Power Generated [MW]	25.9
Parasitic Power Demand [MW]	2.9
Net Power Produced [MW]	23.0
Steam Generation [lb/hr]	62,000
Gas Pretreatment Facility	
Digester Gas Flow [scfm]	7,600
Fuel Gas Compressors	
Number of Units	5
Type	3-3 Stage Recip. 2-Multi Stage Recip.
Fuel Gas Discharge per Unit [scfm]	5 @ 2,800
Discharge Pressure [psia]	3 @ 390 2 @ 275
Motor Power [MHP]	3 @ 1,000 2 @ 800
Gas Turbines	
Number of Units	5
Type	3-Solar Mars T10000 2-Solar Mars T12000
Fuel Gas Flow per Unit [scfm]	3 @ 2,380 2 @ 2,760
Fuel Heat Input per Unit [MMBTU/hr]	3 @ 82.5 2 @ 93

Process	Capacity
Power Generation (continued)	
Waste Heat Recovery Boilers	
Number of Units	5
Type	3-Dual Pressure 2-Single Pressure
Gross Steam Production	
Low Pressure [lb/hr]	3 @ 8,000 2 @ 35,000
High Pressure [lb/hr]	3 @ 23,000
Steam Pressure	
Low Pressure [psia]	3 @ 57 2 @ 30
High Pressure [psia]	3 @ 450
Boiler Water Treatment System	
Number of Units	4
Type	2-Sodium Zeolite Softeners
Design Flow Per Unit [gpm]	2 @ 163 2 @ 120
Boiler Feedwater Pumps	
Number of Units	5
Type	3-Single Stage 2-Multi Stage
Design Flow per Unit [gpm]	3 @ 70 2 @ 60
Total Differential Pressure	3 @ 625 2 @ 120
Motor Power	3 @ 50 HP 2 @ 7.5 HP
Deaerator	
Number of Units	1
Type	Horizontal Spray
Design Flow per Unit [lb/hr]	60,000
Instrument and Plant Air System	
Number of Units	4
Type	Reciprocating
Design Flow per Unit [cfm]	100
Discharge Pressure [psig]	100
Selective Catalytic Reduction System	
Number of Units	5
Type of Catalyst	Zeolite
Chemical Used	Aqueous Ammonia

7.2 PROPOSED WRP EXPANSIONS

7.2.1 SJCWRP

The capacity of the SJCWRP will be expanded from 100 to 125 mgd. This expansion will be accomplished by modular additions to the primary, secondary, and tertiary treatment systems at the SJCWRP and essentially involves duplication of existing facilities. Proposed SJCWRP facilities are described in Chapter 6. Preliminary design criteria for proposed SJCWRP facilities are also presented in Chapter 6. Detailed design criteria for these facilities will be given in project level documentation for the SJCWRP expansion which will be prepared prior to project implementation.

Design and construction of proposed SJCWRP facilities are tentatively planned to begin in 2002 and 2004 respectively and the proposed facilities are tentatively expected to come on line in 2006. The actual implementation of this project may be accelerated or delayed based on actual wastewater flow development.

7.2.2 LCWRP

The capacity of the LCWRP will be expanded from 37.5 to 50 mgd. This expansion will be accomplished by modular additions to the existing primary, secondary, and tertiary treatment systems at the LCWRP and essentially involves duplication of existing facilities. Proposed LCWRP facilities are described in Chapter 6. Preliminary design criteria for these facilities are also presented in Chapter 6. Detailed design criteria for proposed LCWRP facilities will be given in project level documentation for the LCWRP expansion which will precede project implementation.

Design and construction of proposed LCWRP facilities are tentatively planned to begin in 2004 and 2006 respectively and the proposed facilities are tentatively scheduled to come on line in 2008. The actual implementation of this project may be accelerated or delayed based on actual wastewater flow development.

7.3 BIOSOLIDS MANAGEMENT

The Districts existing biosolids management program will be expanded to accommodate increased biosolids production from JOS facilities as a result of increased waste loads and of the implementation of full secondary treatment in the JOS. The proposed biosolids management program is described in Chapter 6.

7.4 RELATED PROJECTS

There are several other ongoing, independent studies which are not formally a part of the 2010 Plan. The findings of these studies will, however, affect the operation of JOS facilities, and any relevant information which becomes available will, therefore, be integrated into the 2010 Plan. The following are subjects of ongoing, independent studies:

7.4.1 BENEFICIAL REUSE OF RECLAIMED WATER

As a condition of the Consent Decree, the Districts agreed to use their best efforts to attain and maintain a goal of 150 mgd of beneficial reuse of reclaimed water produced at Districts' facilities by December 31, 2002. In addition, the Districts agreed to prepare a plan for the beneficial reuse of reclaimed water produced at Districts' facilities. As required by the Consent Decree, this plan shall:

- Identify and evaluate the potential for reuse of reclaimed water produced by the Districts;
- Delineate and examine the impediments to use of reclaimed water including technical, regulatory, and institutional barriers; and
- Propose a strategy for avoiding or overcoming identified impediments.

Preparation of this plan will parallel preparation of the JOS 2010 Master Facilities Plan, and as required by the Consent Decree, the plan will be submitted to the EPA and the RWQCB on or before December 31, 1995.

7.4.2 SEWER REHABILITATION

A number of the Districts' reinforced concrete sewers continue to undergo severe sulfide corrosion which has necessitated major sewer rehabilitation projects. As described in Section 6.13.1 of this report, the Districts continuously monitor the need for sewer rehabilitation work through the existing sewer monitoring and planning program. Necessary sewer rehabilitation projects will be identified and planned in the manner previously described and project level planning documents and environmental assessments will be prepared for each project.

7.4.3 LA CAÑADA WRP OUTFALL SEWER

An outfall is being constructed to tie the La Cañada WRP located in La Cañada Flintridge into the JOS. The La Cañada WRP is currently owned and operated by District No. 28, which serves a small sewered area located in the northeast portion of La Cañada Flintridge. This outfall will also provide

service to local residences in District No. 34. District No. 34, which is also located in La Cañada Flintridge, currently has no local sewerage facilities. District No. 28 and District No. 34 will become members of the JOS, effective July 1, 1995, increasing the number of JOS Districts from 15 to 17. Also at that time, ownership of the La Cañada WRP, a 0.2-mgd extended aeration treatment facility, will be transferred from District No. 28 to the JOS, and the WRP will become the seventh wastewater treatment plant in the JOS. The La Cañada WRP has no solids treatment facilities, and all solids are currently transported by vacuum truck to the JOS for treatment and disposal. During summer, all of the effluent from the plant is reused at an adjacent golf course. A separate project report and an environmental document were prepared for this outfall sewer project. Construction began in March 1995. The maximum flow which these Districts are expected to contribute to the JOS is approximately 1.0 mgd. Since flow from these Districts will have a negligible effect on JOS facilities, it was not included in JOS flow projections and was not considered during the development and screening of system alternatives.

7.5 PROJECT FINANCING

Financing of the recommended project is presented under two categories: 1) capital and 2) operation and maintenance. Although the project costs will be incurred in future years, all amounts contained in the following discussion are in 1994 dollars.

7.5.1 CAPITAL FINANCING

Table 6.13-11 provided the cost estimates for each of the project alternatives plus the solids processing facilities at JWPCP. For the recommended project and solids processing facilities, these costs have been divided into upgrade and expansion components. The results are summarized in Table 7.5-1.

Table 7.5-1
UPGRADE AND EXPANSION COMPONENTS OF THE RECOMMENDED PROJECT

Element	Upgrade	Expansion	Total
JWPCP (200 mgd Secondary)	$204,800,000	$ 0	$204,800,000
SJCWRP (25 mgd)	0	35,300,000	35,300,000
LCWRP (12.5 mgd)	0	19,700,000	19,700,000
JWPCP (Solids Processing)	104,200,000	92,600,000	196,800,000
Total	**$309,000,000**	**$147,600,000**	**$456,600,000**

JWPCP Full Secondary Treatment and Associated Solids Processing Facilities

As shown in Table 7.5-1, the capital cost of the recommended project including the associated solids processing facilities is approximately $457 million. For purposes of preliminary financial analysis, the project can be divided into two components, upgrade (for the benefit of existing users) and expansion (for the benefit of new users). The respective costs are approximately $309 million and $148 million.

The upgrade portion of the project will be funded by the existing users through the Districts' Service Charge Program (annual user charge). The upgrade capital cost equates to approximately $155 per single family home (commercial and industrial users would pay proportionally). A 1995 federal appropriation will provide a $50 million grant for JWPCP secondary treatment facilities, bringing the net cost per single family home to $130. This cost will be spread over the entire construction period to lessen the impact in any given year. The impact will be further reduced by the use of existing funds set aside for JWPCP secondary treatment. Additionally, the cost can be spread over an even greater number of years by utilizing long term financing, including state low-interest loans and bond financing.

San Jose Creek and Los Coyotes WRP Expansions and Associated Solids Processing Facilities

Both of the proposed WRP expansions plus the associated solids processing facilities provide capacity for new users. Thus, the construction costs for these projects should be passed on to these new users through the Connection Fee Program. Although the collection of connection fees and construction of the facilities parallel actual growth trends (Section 6.3.3), construction must be completed and facilities must be on-line before the new flows actually materialize. To this end, the Districts will apply for State Revolving Fund (SRF) loan funding to manage cash flows and to ensure that facilities are constructed with sufficient lead time. Ultimately, the cost of expansion will be funded through connection fees, either directly or through the repayment of SRF loan funding. As a result, the expansion-related portions of the recommended project will have no impact on existing users or the service charge which they pay.

7.5.2 OPERATION AND MAINTENANCE FINANCING

Upgrade Facilities

Regardless of whether any growth occurs, operation and maintenance (O&M) costs will increase when the JWPCP full secondary treatment facilities and associated solids processing facilities become operational. Because the operation of these facilities is not growth dependent, any increased costs will be borne by the existing users.

The projected O&M cost (present value) for these facilities is approximately $18.5 million per year. This translates to a cost of approximately $9 per sewage unit (single family home) per year. It should be noted that this cost will not be incurred until construction is complete. Thus, to the degree that pay-as-you-go financing is utilized, the cost of O&M will not be additive to the capital cost.

Expansion Facilities

There will also be an increase in O&M costs when the SJCWRP and LCWRP expansions come on line. Although the total cost will increase, the number of users will also increase proportionately. Hence, the cost per user (sewage unit) should remain the same and these facilities will have no impact on the existing service charge rate.