

- **Board of Directors**  
**Engineering, Operations, and Real Property Committee**

October 16, 2001 Board Meeting

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8-1

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**Subject**

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Authorize \$4.135 million to fund seven Capital Investment Plan projects for the Distribution System Rehabilitation Program (Appn. 15377)

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**Description**

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Metropolitan staff initiated the Infrastructure Reliability and Protection Plan (IRPP) in July 2000. The plan's objective is to evaluate risks and vulnerabilities of Metropolitan facilities, and to identify cost-effective options to address those risks through rehabilitation, repair or replacement. As part of the IRPP, staff is conducting reconnaissance surveys of Metropolitan's conveyance, treatment and distribution system. Numerous items or portions of the system were identified as needing repairs, refurbishment or replacement. The recommended repairs will protect Metropolitan's invested assets, increase the reliability of service to our customers and reduce the risk of costly emergency repairs. The projects described within this program were evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and are included in the fiscal year 2001/02 budget.

The Distribution System Rehabilitation Program aims to maintain the reliability and regulatory compliance of Metropolitan's distribution system.

Seven projects have been initially identified under this program. They include: (1) the West Valley Feeder No.1 Valve Structure Modifications, which will perform final design and valve procurement in order to repair and upgrade feeder structures; (2) the Eagle Rock Tower Slide Gates Rehabilitation, which will rehabilitate five slide gates that control flow for four pipelines; (3) the Anode Well Replacement, which will replace two depleted anode wells and rectifiers; one on the Orange County Feeder and one on the Rialto Feeder; (4) the San Diego Canal Seepage Study, that will analyze the seepage along the canal; perform a repair test; recommend corrective action; and prepare necessary environmental documentation; (5) the West Valley Feeder No. 1 Access Roads and Structures Improvements, which will perform preliminary design and prepare environmental documentation necessary for the construction of access roads and improvements to various structures; (6) the Orange County Feeder Access Road and Blow-off Structure Repairs, which will perform preliminary design and prepare environmental documentation necessary for repairs to an access road and blow-off structure; and (7) the Yorba Linda Feeder Portal Access Road Repairs, which will perform preliminary design and prepare environmental documentation necessary to repair an access road that has been damaged by erosion. In addition, an evaluation of long-term needs will be conducted to identify future projects for implementation during the next five years.

See [Attachment 1](#) for the Detailed Report of each project, [Attachment 2](#) for the Financial Statement, and [Attachment 3](#) for the Location Map.

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**Policy**

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Metropolitan Water District Administrative Code 5108: Capital Projects Appropriation

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**CEQA**

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West Valley Feeder No. 1 Valve Structure Modifications

The West Valley Feeder No. 1 Valve Structure Modifications project is categorically exempt under the provisions of the California Environmental Quality Act (CEQA). The proposed activity involves modifying or constructing about 45 structures (e.g., air release/vacuum valves, underground vaults, blow-off structures and pumping wells)

associated with existing public facilities with no expansion of use and no possibility of significantly impacting the physical environment. As such, the proposed project action qualifies under a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the West Valley Feeder No. 1 Valve Structure Modifications project qualifies under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

#### West Valley Feeder No. 1 Access Roads and Structure Improvements

The proposed action to be taken at this time for the West Valley Feeder No. 1 Access Roads and Structures Improvements project is categorically exempt under the provisions of CEQA. Studies to be performed as part of this action consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. As such, the proposed project action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the proposed action for the West Valley Feeder No. 1 Access Roads and Structures Improvements project qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

#### Eagle Rock Tower Slide Gates Rehabilitation

The Eagle Rock Tower Slide Gates Rehabilitation project is categorically exempt under the provisions of CEQA. The proposed activity includes the rehabilitation of the slide gates and replacement of motors and other related components (e.g., gate seals, guides, stems and bolting) where older components are replaced by new components with same purpose and capacity. Therefore, the proposed project qualifies under a Class 2 Categorical Exemption (Section 15302 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the Eagle Rock Tower Slide Gates Rehabilitation project qualifies under a Categorical Exemption (Class 2, Section 15302 of the State CEQA Guidelines).

#### Anode Well Replacement (Orange County Feeder and Rialto Feeder)

The Anode Well Replacement (Orange County Feeder and Rialto Feeder) project is categorically exempt under the provisions of CEQA. The proposed activity includes replacing the cathodic protection system where older components are replaced by new components at the same sites with the same purpose and capacity. Therefore, the proposed project qualifies under a Class 2 Categorical Exemption (Section 15302 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the Anode Well Replacement (Orange County Feeder and Rialto Feeder) project qualifies under a Categorical Exemption (Class 2, Section 15302 of the State CEQA Guidelines).

#### San Diego Canal Seepage Study

The San Diego Canal Seepage Study project is categorically exempt under the provisions of CEQA. Studies to be performed as part of the project to determine the leakage problems consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded. As such, the proposed project action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the proposed action for the San Diego Canal Seepage Study project qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

#### Orange County Feeder Access Road and Blow-off Structure Repairs

The proposed action to be taken at this time for the Orange County Feeder Access Road and Blow-off Structure Repairs project is categorically exempt under the provisions of CEQA. Studies to be performed as part of this action consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded. As such, the proposed project action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the proposed action for the Orange County Feeder Access Road and Blow-off Structure Repairs project qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

#### Yorba Linda Feeder Portal Access Road Repairs

The proposed action to be taken at this time for the Yorba Linda Feeder Portal Access Road Repairs project is categorically exempt under the provisions of CEQA. Studies to be performed as part of this action project consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded. As such, the proposed project action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the proposed action for the Yorba Linda Feeder Portal Access Road Repairs project qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

#### Evaluation of Long-term Needs and Identification of Future Projects

The Evaluation of Long-term Needs and Identification of Future Projects is categorically exempt under the provisions of CEQA. Studies to be performed as part of this activity during the next five years will consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted or funded. As such, the proposed activity qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination for Option #1 is: Determine that pursuant to CEQA, the Evaluation of Long-term Needs and Identification of Future Projects qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

**Board Options/Fiscal Impacts**

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**Option #1**

Adopt the CEQA determination for all seven projects, appropriate \$4.135 million, and authorize the Chief Executive Officer to have all work performed, including the authority to award competitively bid contracts over \$250,000, for seven Distribution System Rehabilitation Program projects as described in this letter:

- Design/valve procurement for the repairs and upgrades to the 5.5-mile leased portion of the West Valley Feeder No. 1 valve structures.
- Perform studies and prepare preliminary design and environmental documentation necessary to construct access roads and improvements to blow-off and air release/vacuum valve structures on the 2.4-mile unleased portion of the West Valley Feeder No. 1.
- Design/rehabilitation of the Eagle Rock Tower slide gates.
- Design/construction of the replacement of anode wells and rectifiers on the Orange County and Rialto Feeders.
- Perform seepage studies and a test repair to a portion of the San Diego Canal; perform preliminary design; and prepare environmental documentation necessary to perform leakage repairs to the canal.
- Perform preliminary design and prepare environmental documentation necessary to make repairs to the Orange County Feeder Access Road and Blow-off Structure.
- Perform preliminary design and prepare environmental documentation necessary to make repairs to the Yorba Linda Feeder Portal Access Road.
- Conduct studies and evaluations to identify additional projects to be implemented over the next five years.

**Fiscal Impact:** \$3.7 million of budgeted and \$435,000 of non-budgeted CIP funds under new Appropriation 15377. If the Board approves this recommendation, the fiscal year 2001/2002 CIP expenditure plan will be adjusted as needed.

**Option #2**

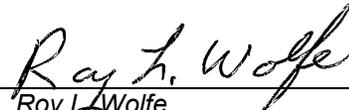
Take no action at this time regarding repairs to the distribution system under this program. The existing conditions will continue to be monitored, and repairs will be made when problems occur.

**Fiscal Impact:** None

**Staff Recommendation**

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Option #1

 _____ Roy L. Wolfe Manager, Corporate Resources	9/17/2001 Date
 _____ Ronald R. Gastelum Chief Executive Officer	9/25/2001 Date

[Attachment 1 – Detailed Report](#)

[Attachment 2 – Financial Statement](#)

[Attachment 3 – Location Map](#)

## Detailed Report

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**Purpose/Background.** In July 2000, Metropolitan staff initiated the Infrastructure Reliability and Protection Plan (IRPP) to evaluate risks and vulnerability of Metropolitan facilities, and to identify cost-effective options to address those risks through rehabilitation, repair or replacement. Metropolitan's distribution system is comprised of hundreds of miles of pipelines, as well as reservoirs, pressure control structures, flow meters, sectionalizing valves, and hydroelectric power plants. As part of the IRPP, staff is conducting reconnaissance surveys of Metropolitan's conveyance, treatment and distribution system. While the surveys are ongoing, staff has identified numerous portions of the distribution system in need of repair, refurbishment or replacement. Staff organized the identified projects into the Distribution System Rehabilitation Program, which is intended to maintain the reliability and regulatory compliance of the distribution system.

**Project Description.** Seven projects have been initially identified under this program. The projects are: (1) the West Valley Feeder No.1 Valve Structure Modifications; (2) the Eagle Rock Tower Slide Gates Rehabilitation; (3) the Anode Well Replacement; (4) the San Diego Canal Seepage Study; (5) West Valley Feeder No.1 Access Roads and Structure Improvements; (6) the Orange County Feeder Access Road and Blow-off Structure Repairs; and (7) the Yorba Linda Feeder Portal Access Road Repairs. In addition, an investigation of long-term needs and identification of future projects for implementation during the next five years will be conducted.

### **West Valley Feeder No. 1 Valve Structure Modifications (\$1,900,000)**

Metropolitan acquired the 7.9-mile long West Valley Feeder No.1 in 1969 from the Calleguas Municipal Water District. A 5.5-mile portion was subsequently leased to the city of Los Angeles in 1977. The lease was renegotiated in 1999, obligating Metropolitan, under compensation terms included in the lease, to maintain and repair the pipeline as needed. Currently, conditions such as buried valves, below-grade air release and vacuum valves, and insufficient access into the pipeline, exist throughout the pipeline alignment, limiting Metropolitan's ability to operate and maintain the feeder. These conditions expose valves and piping to an accelerated rate of deterioration as well as cross-contamination problems, and impair inspections. Although these conditions had been previously identified, Metropolitan did not have access to the pipeline to perform repairs until the lease was renegotiated in 1999.

This project will perform final design to modify a total of approximately 45 blow-off, pumping well, and air release/vacuum valve structures on the leased portion of the West Valley Feeder No. 1. Future work includes the construction of new structures to replace undersized vaults or to house valves that are currently buried, and modifications to air-release and vacuum valve, blow-off and pumping well installations to meet cross-connection regulatory requirements and/or operational needs.

#### *Actions and Milestones*

October 2001 – Board authorization and funding for design and valve procurement

October 2002 – Complete design and request Board authorization for construction funding

### **West Valley Feeder No. 1 Access Roads and Structures Improvements (\$465,000)**

2.4 miles of the 7.9-mile long West Valley Feeder No.1 are still fully operated by Metropolitan. Currently, there are no existing roads to access several of the structures along this unleased portion, making it difficult to maintain or patrol the feeder. In addition, similar to the 5.5-mile leased portion of the feeder, conditions such as buried valves, below-grade air release and vacuum valves, and insufficient access into the pipeline, limit Metropolitan's ability to operate and maintain the feeder. This 2.4-mile reach of the feeder goes through the Chatsworth Park area. Based on a biological reconnaissance survey conducted in June of 2001, more detailed environmental studies are required prior to final design and construction.

This project will perform the preliminary design and prepare the environmental documentation necessary to construct access roads and structure improvements along this region of the feeder.

*Actions and Milestones*

October 2001 – Board authorization and funding

October 2002 – Complete preliminary design and environmental studies

**Eagle Rock Tower Slide Gates Rehabilitation (\$410,000)**

The Eagle Rock Tower, which was constructed in the 1940s, controls flow from the Upper Feeder to the Palos Verdes Feeder, Santa Monica Feeder and Eagle Rock Lateral. Five slide gates within the tower regulate and control water flow. Rehabilitation work was performed on the slide gates and gate stems in the 1960s, but not on the motors, and no additional work has been performed since.

Because the slide gate components, including the gate seals, are aging and deteriorating, they have limited the operating range of the gates and impacted their reliable operation. Two of the gates can no longer be opened beyond 70 percent. In addition, the motors that operate the slide gates have surpassed their normal life span and need to be replaced.

This project will rehabilitate the slide gates and purchase new motors and other replacement components in order to reliably regulate flow, shut down the feeders when necessary, and maintain worker safety during shutdowns.

*Actions and Milestones*

October 2001 – Board authorization and funding

October 2002 – Complete design and procurement

June 2003 – Complete construction

**Anode Well Replacement (\$260,000)**

The Orange County Feeder (OCF) and Rialto Feeder (RF) are cathodically protected to prevent corrosion. The OCF cathodic protection system was installed in 1972, and the RF system was installed in 1988. Both systems utilize sacrificial anodes that require replacement every 20 to 30 years.

The performance of one of the OCF cathodic protection sites has recently declined significantly, and testing indicates that it has reached the limit of its service life and is no longer functional. One of the RF cathodic protection sites has not operated as designed due to the presence of high soil moisture content. Staff has tried to improve the performance of the RF site by increasing the output voltage from the rectifier. However, this has proven unsatisfactory due to the electrical shock hazard to personnel. The RF system has been turned off and is no longer operational.

This project will install new anode wells and rectifiers at both sites to bring the cathodic protection systems on the OCF and RF back up to full operation.

*Actions and Milestones*

October 2001 – Board authorization and funding

December 2001 – Complete design

August 2002 – Complete construction

**San Diego Canal Seepage Study (\$250,000)**

The San Diego Canal was constructed in the 1960s and was designed to carry 1000 cubic feet per second (cfs). In 1991, the construction of the canal enlargement was completed, which increased the canal capacity to 1700 cfs. The additional capacity was not used until November 1999, when the amount of water flowing in the canal was increased to deliver water into Diamond Valley Lake.

Within a few months it was discovered that several areas along the toe of the canal embankment showed signs of seepage, apparently as a direct result of the increased flow. As a remedial solution, District forces installed a sub-drain system that captures the seepage water before it runs into property adjacent to the Metropolitan canal right-of-way. This action solved the immediate problem of the seepage water traveling into adjacent properties but did not explain the increased seepage. Additional work is necessary to determine if the seepage can be averted to prevent the loss of water, potential negative impacts to property owners, and the possible undermining of the canal's side slopes.

The proposed study will allow staff to gather additional data, investigate alternative solutions, perform tests, provide a final recommendation for corrective action, and prepare environmental documentation to perform a complete repair. A key component of the seepage test will be the removal and replacement of approximately 2000 feet of existing sealant at the horizontal joint located on the upper portion of the inside canal. Since the canal's water level has historically remained below the horizontal joint between the original canal lining and the raised canal lining, the sealant in the horizontal joint has deteriorated. It is suspected that the existing, deteriorated sealant is a major contributor to the excess seepage.

*Actions and Milestones*

October 2001 – Board authorization and funding

October 2002 – Complete testing

December 2002 – Complete study

**Orange County Feeder Blow-Off Structure and Access Road Repair (\$120,000)**

The Orange County Feeder Blow-Off structure (Sta. 1920+78) is located in the city of Newport Beach adjacent to the San Diego Creek Channel and east of Upper Newport Bay. The blow-off is used to quickly de-water the pipeline in the event of an emergency or for routine inspections. Access to the structure is from an existing utility road.

Metropolitan has a blanket easement to access the structure via the existing roads, but does not have the right to improve or maintain the utility road. Due to excessive rains, lack of maintenance by the underlying fee owner, and excessive vegetation, the access road to the blow-off has become impassable. Without access, Metropolitan personnel cannot carry out routine valve maintenance or perform routine surveillance. In addition, tidal action from Upper Newport Bay, as well as rainfall runoff, has eroded the structure's protective embankment. Environmental permits will be needed to perform the repair work.

This project will perform preliminary design and prepare the environmental documentation necessary to make repairs to the access road and the blow-off structure.

*Actions and Milestones*

October 2001 – Board authorization and funding

May 2002 – Complete preliminary design and environmental studies

**Yorba Linda Feeder Sta. 924+11 Diemer Tunnel Portal Structure Access Road Repair (\$80,000)**

The Diemer Tunnel portal access structure is located in the city of Yorba Linda on the north slope of the Diemer filtration plant. The structure and access road is used to access the Diemer Tunnel and to maintain the valves within the structure.

The road leading to the portal structure has suffered ongoing erosion damage during heavy rains. In addition, the road has become blocked with overgrown vegetation; maintenance vehicles can no longer reach the structure.

This project will perform the preliminary design and prepare the environmental documentation necessary to make repairs and perform semi-annual valve maintenance, periodic patrol of the pipeline, and ensure access to the Diemer Tunnel during emergencies and routine inspections.

*Actions and Milestones*

- October 2001 – Board authorization and funding
- November 2001 – Complete preliminary design and environmental studies
- November 2002 - Complete construction

**Perform studies and investigations (\$150,000)**

Due to the age of Metropolitan's distribution system, and as part of the Infrastructure Reliability and Protection Plan, a comprehensive study and planning effort has been undertaken by staff to identify improvements that are necessary to ensure reliable operation of the distribution system. To generate a more accurate assessment of the scope and cost of repairs, a series of investigative and environmental studies will be performed.

*Actions and Milestones*

- October 2001 – Board authorization and funding
- December 2002 – Complete evaluation and environmental studies

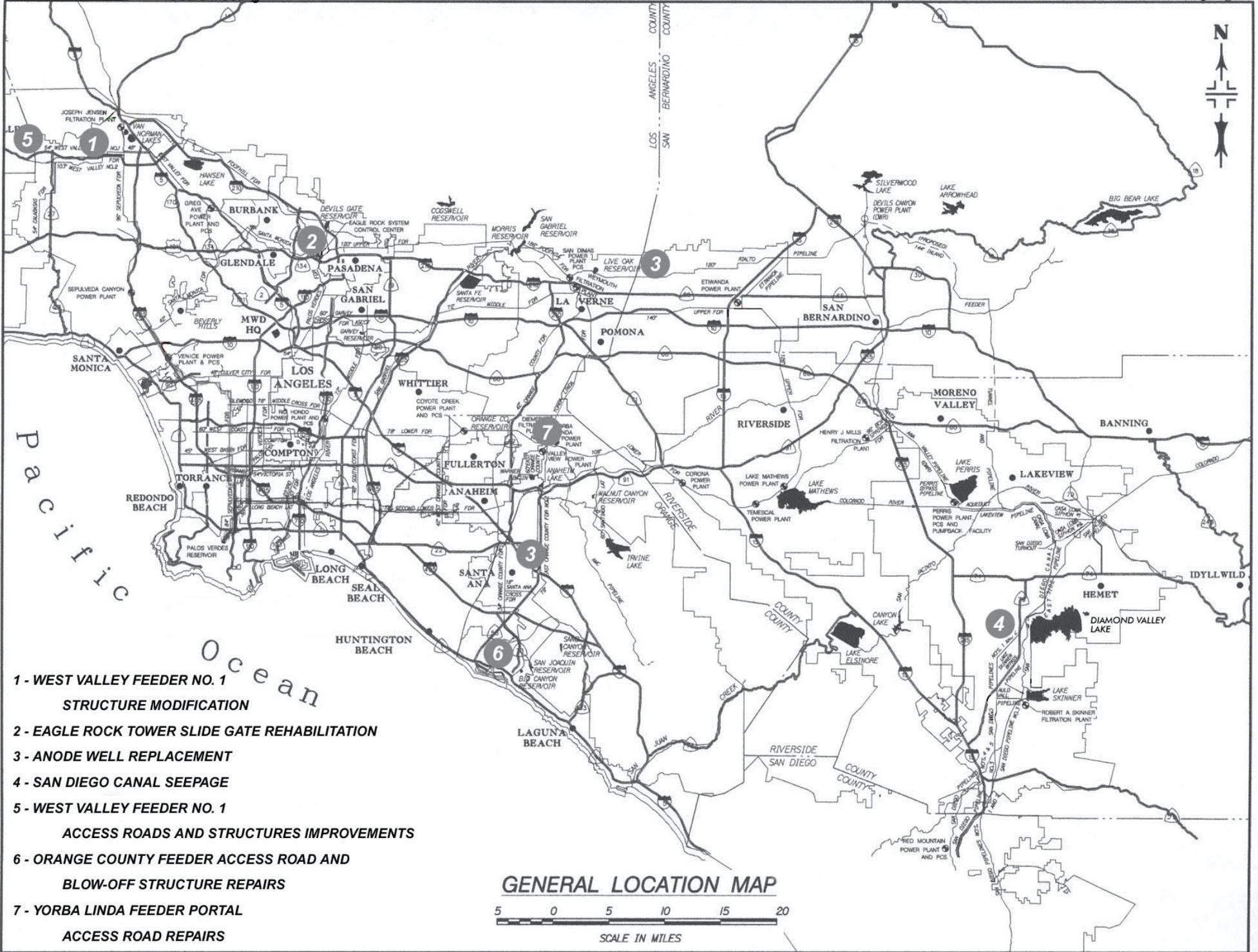
**FINANCIAL STATEMENT**

Authorize \$4.135 million for study, design and construction of seven projects as part of the Distribution System Reliability Program:

		<b>BOARD ACTION NO. 1 (Oct. 2001)</b>
		<hr/>
Labor		
Studies and Planning	\$	405,000
Design		970,000
District Forces (Construction, Utility Search, Potholing)		260,000
Construction Management and Inspection		38,000
Owner Costs (Project Management, Water Quality, Environmental Studies and Permitting)		330,000
Materials and Supplies (Valves, Motors, Slide Gate Components)		790,000
Incidental Expenses		75,000
Professional and Technical		365,000
Right of Way and Land (Temporary Easements)		115,000
Operating Equipment		89,000
Construction Contract (San Diego Canal Test Repair, Anode Well Repair )		198,000
Remaining Budget		<hr/> 500,000
<b>Total</b>		<hr/> <b>\$4,135,000</b> <hr/>

**FUNDING REQUEST**

<b>Program Name:</b>	Distribution System Rehabilitation Program		
<b>Source of Funds:</b>	Construction Funds (Possibly General Obligation, Revenue Bonds, or Pay-As-You-Go Fund)		
<b>Appropriation No.:</b>	15377	<b>Board Action No.:</b>	1
<b>Requested Amount:</b>	\$ 4,135,000	<b>Capital Program No.:</b>	01212-I
<b>Total Appropriated Amount:</b>	\$ 4,135,000	<b>Capital Program Page No.:</b>	E-36
<b>Total Program Estimate:</b>	\$ 12,000,000	<b>Program Goal:</b>	R-Reliability



- 1 - WEST VALLEY FEEDER NO. 1  
STRUCTURE MODIFICATION**
- 2 - EAGLE ROCK TOWER SLIDE GATE REHABILITATION**
- 3 - ANODE WELL REPLACEMENT**
- 4 - SAN DIEGO CANAL SEEPAGE**
- 5 - WEST VALLEY FEEDER NO. 1  
ACCESS ROADS AND STRUCTURES IMPROVEMENTS**
- 6 - ORANGE COUNTY FEEDER ACCESS ROAD AND  
BLOW-OFF STRUCTURE REPAIRS**
- 7 - YORBA LINDA FEEDER PORTAL  
ACCESS ROAD REPAIRS**

**GENERAL LOCATION MAP**  
 5 0 5 10 15 20  
 SCALE IN MILES