

- **Board of Directors**
Engineering and Operations Committee

September 10, 2002 Board Meeting

8-2

Subject

Authorize \$8.64 million to fund seven Capital Investment Plan projects for the Distribution System Rehabilitation Program (Approp. 15377)

Description

In October 2001, the Board authorized funding for the first seven projects as part of the Distribution System Rehabilitation Program. This program evaluates risks and the vulnerability of Metropolitan facilities, and identifies 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 program, 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 and has identified six additional projects for inclusion in the program. Six of 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 2002/03 budget. A project calling for the replacement of the needle valve operators at the Etiwanda Hydroelectric Plant project was not identified in the FY 2002/03 budget, but funds for the work are available since additional funds were allocated in the program for unanticipated minor projects. Due to the urgent nature of the work it was recommended by Metropolitan's Capital Investment Plan Evaluation Team.

Six new projects have been identified under this program; another will seek funds to enter into construction; design was previously authorized. They include: (1) West Valley Feeder No. 1 Valve Structure Modifications, to construct repairs and upgrade feeder structures; (2) Santiago Lateral Valve Replacement, which will replace two leaking valves; (3) Covina Pressure Control Structure Valve Replacement, which will replace 14 worn isolation valves; (4) Greg Avenue Control Structure Valve Replacement, which will replace four valves that do not seal properly; (5) Flow Meter Modifications, which will improve the accuracy of existing meters at various facilities; (6) Replacement of the Needle Valve Operators at the Etiwanda Hydroelectric Plant, which will replace the existing electrical power cylinders with a hydraulic operating system; and (7) a Sepulveda Canyon Control Facility Tank Recoating, which will perform design and prepare environmental documentation necessary to recoat the water tanks.

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

Policy

Metropolitan Water District Administrative Code § 5108: Capital Projects Appropriation

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed seven projects identified in the Distribution System Rehabilitation Program have been evaluated pursuant to CEQA and the State CEQA Guidelines. The Board previously exempted one of the projects. The other six projects are also deemed exempt from CEQA. The proposed projects have been grouped together by their similar CEQA determinations and discussed below.

West Valley Feeder No. 1 Valve Structure Modifications

To comply with CEQA, Metropolitan as the Lead Agency determined that the West Valley Feeder No. 1 Valve Structure Modifications was categorically exempt (i.e., Class 1, Section 15301 of the State CEQA Guidelines) and approved the project (i.e., final design) on October 19, 2001. The current board action involves the approval of construction with no major modifications to the original project. Hence, the previously adopted exemption complies with CEQA and the State CEQA Guidelines with respect to the proposed construction. As such, no further environmental documentation is necessary for the Board to act on with respect to this proposed project.

The CEQA determination is: Determine that the proposed project has been previously addressed in the 2001 categorical exemption and that no further environmental analysis or documentation is required.

Santiago Lateral Valve Replacement, Covina Pressure Control Structure Valve Replacement, Greg Avenue Control Structure Valve Replacement, Flow Meter Modifications at Three Metropolitan Facilities, Replacement of Needle Valve Operators at the Etiwanda Hydroelectric Plant, and Sepulveda Pressure Control Facility Tank Repair

The six proposed projects are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed activities involve the design, funding, and construction or modification of existing Metropolitan facilities involving negligible or no expansion of use and no possibility of significantly impacting the physical environment. As such, the six proposed projects qualify under a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the six proposed projects qualify under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination for all seven projects and appropriate \$8.64 million so that Metropolitan forces can implement the following projects:

- \$6.63 million of budgeted funds to repair and upgrade the 5.5-mile leased portion of the West Valley Feeder No. 1 valve structures.
- \$0.5 million of budgeted funds to replace valves on the Santiago Lateral.
- \$0.41 million of budgeted funds to replace valves at the Covina Pressure Control Structure.
- \$0.19 million of budgeted funds to replace valves on the Greg Avenue Control Structure.
- \$0.424 million of budgeted funds to perform flow meter modifications at three Metropolitan facilities.
- \$0.376 million of unbudgeted funds to replace needle valve operators at the Etiwanda Hydroelectric Plant.
- \$0.109 million of budgeted funds to perform design activities and prepare environmental documentation necessary to recoat the Sepulveda Canyon Control Facility tanks.

Fiscal Impact: \$8.64 million of CIP funds under Approp. 15377

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

Option #1


Roy J. Wolfe
Manager, Corporate Resources

8/9/2002

Date


Ronald R. Gastelum
Chief Executive Officer

8/17/2002

Date

Attachment 1 – Detailed Report

Attachment 2 – Financial Statement for Distribution System Rehabilitation Program

BLA #1470

Detailed Report

Purpose/Background. In October 2001, the Board authorized funding for the first seven projects as part of the Distribution System Rehabilitation Program. This program evaluates risks and vulnerability of Metropolitan facilities, and identifies 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 program, 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 and has identified six additional projects for inclusion in the program. In addition, design has been completed for the West Valley Feeder No.1 Valve Structure Modifications and funding is being requested for the construction phase.

Project Description. Six new projects have been identified under this program; one additional project is ready to enter into the construction phase. The projects are: (1) the West Valley Feeder No.1 Valve Structure Modifications; (2) the Santiago Lateral Valve Replacement; (3) the Covina Pressure Control Facility Valve Replacement; (4) the Greg Avenue Control Structure Valve Replacement; (5) the Flow Meter Modifications; (6) the Replacement of the Needle Valve Operators at the Etiwanda Hydroelectric Plant; and (7) the Sepulveda Canyon Control Facility Tank Recoating.

West Valley Feeder No. 1 Valve Structure Modifications (\$6,631,000)

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, equipment such as buried valves, below-grade air release and vacuum valves, and insufficient access into the pipeline, exist throughout the pipeline alignment. These conditions limit Metropolitan's ability to operate and maintain the feeder by exposing the valves and piping to an accelerated rate of deterioration as well as cross-contamination problems, and impair inspections. These conditions had been previously identified; however, Metropolitan did not have access to the pipeline to perform repairs until the lease was renegotiated in 1999.

In October 2001, the Board authorized staff to 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. This board action will authorize Metropolitan forces to construct 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. Metropolitan forces will conduct construction activities over three consecutive shutdown seasons.

Actions and Milestones

September 2002 – Board authorization and funding for construction

June 2004 – Metropolitan forces complete construction

Santiago Lateral Valve Replacement (\$500,000)

Two motor-operated butterfly valves, installed in the mid 1960s, on the Santiago Lateral have exceeded their life expectancy and are experiencing excessive leakage when closed. These valves are used to isolate reaches in the pipeline to allow for emergency repairs or for routine maintenance and inspection. One 48-inch valve isolates a 4-mile reach and another 42-inch valve isolates water to service connection OC-33. Due to the excessive leakage, up to 1,000 gallons per minute, the reaches cannot be completely separated from the system. In the event of a shutdown the leakage water needs to be continuously pumped to allow personnel to access the pipeline.

Replacement of these valves will permit Metropolitan forces to safely shut down the Santiago Lateral for routine maintenance or in the event of an emergency. This project will provide funds for the development of specifications for the procurement of the valves and for Metropolitan-force installation.

Actions and Milestones

September 2002 – Board authorization and funding

December 2002 – Complete purchase requisition

February 2004 – Metropolitan forces install valves and complete project

Covina Pressure Control Structure Valve Replacement (\$410,000)

Fourteen 30-year-old isolation valves at the Covina Pressure Control Structure of the Middle Feeder have exceeded their useful life span and require replacement. These valves, ranging in size from 16 inches to 8 inches, isolate the pressure control valves so that maintenance can be performed every six months. Due to excessive leakage of the worn isolation valves, the pressure control valves cannot be easily isolated from the distribution system so that they can be fully serviced and calibrated. In order to service the pressure control valves staff currently removes a pipe coupling and allows the leakage water to spill while maintenance is being performed. This method of maintenance increases labor cost and creates a safety hazard for employees.

Replacement of these valves will permit Metropolitan forces to safely inspect and maintain the pressure control valves. This project will provide funds for the development of specifications for the procurement of the valves and for Metropolitan-force installation.

Actions and Milestones

September 2002 – Board authorization and funding

December 2002 – Complete purchase requisition

October 2004 – Metropolitan forces install valves and complete project

Greg Avenue Control Structure Valve Replacement (\$190,000)

The Greg Avenue Control Structure's pneumatic actuated valves (two 24-inch ball valves and two 30-inch butterfly valves) are used to shut off the East Valley Feeder or isolate system components during scheduled maintenance activities and emergencies. The pneumatic valves were installed in the mid-1960s and are at or near the end of their useful life. They do not seal properly, leaking approximately 25 gallons per minute. This requires Metropolitan's pipeline personnel to use sump pumps to drain out the water during routine maintenance activities. In addition, the valve indicators do not provide accurate information when the valves are either 100 percent open or 100 percent closed, making it difficult to operate the pump/generation station efficiently.

Replacement of the existing valves, by Metropolitan forces, with electric motor actuated valves that meet Metropolitan's current standards, including valve position indicators and local and remote controls, will increase system reliability and eliminate leaks. In this project phase, Metropolitan forces will perform final design and advertise for the purchase requisition for a competitive bid.

Actions and Milestones

September 2002 – Board authorization and funding

November 2002 – Complete design

December 2002 – Return to Board for construction funds and to award purchase requisition

Flow Meter Modifications (\$424,000)

Meter modifications are proposed at the Lake Skinner Inlet, the Etiwanda Control Facility Effluent and the Wadsworth Cross Channel. Master meters are located in these key areas to provide information critical to the operation of the distribution system. Due to water turbulence at each of the three locations the meters do not provide the accuracy necessary to properly reconcile water system flows. Without accurate flow meter readings at these locations it is difficult to operate the system and water delivery errors could occur.

It is recommended to add sensors at two of the facilities and to relocate the existing meter at the Etiwanda Effluent location. These modifications would improve the meter accuracy at a fraction of the cost that it would cost to add additional meters. In this project, Metropolitan forces will procure and install the equipment required for the flow meter modifications.

Actions and Milestones

September 2002 – Board authorization and funding

June 2003 – Purchase Equipment

October 2003 – Metropolitan forces install meter modifications and complete project

Replacement of Needle Valve Operators at the Etiwanda Hydroelectric Plant (\$376,000)

Metropolitan's Etiwanda Hydroelectric Plant produces electricity that has been sold to Southern California Edison since 1994. Since the power plant was commissioned, the existing six needle valve operators have suffered intermittent failures. Currently, there are only four needle valve operators in service. This includes two spare operators that were purchased in the original contract. Repair of the operators is expensive and can only be performed by the original fabricator since their design is proprietary. With only four operational needle valve operators, the plant is limited to 19 megawatt (MW). With all six needle valves in operation, the plant is capable of producing 24 MW. An estimated \$55,000 a month in revenue is being lost as a result of the deficient needle valves.

The proposed project will replace the existing electric operators with a hydraulic operating system. The new system can be installed for less money than it would cost to repair the existing damaged operators. The new system is also more reliable, easier to maintain, and repair. The capital expenditure for this project will be recovered in approximately four months. This project will provide funds for the development of specifications and the procurement of the operators and Metropolitan-force installation of the equipment.

The need for this project was identified in April 2002, after the FY 2002/03 CIP Budget was finalized. Hence, this project would require the use of unbudgeted CIP funds. If this project is approved, the FY 2002/03 CIP expenditure plan for this program will be adjusted to reflect this new project.

Actions and Milestones

September 2002 – Board authorization and funding

November 2002 – Approve and Award equipment purchase requisition

April 2003 – Metropolitan forces complete construction

Sepulveda Canyon Control Facility Tank Recoating (\$109,000)

The two water storage tanks were constructed of welded steel carbon in 1970 and have been coated twice since the original coatings were applied. The tanks are located in a highly visible area along Sepulveda Boulevard and in the vicinity of the J. Paul Getty Museum. The harsh environments at the Sepulveda location which includes fog, direct sunlight, wind blown dust, and condensed moisture on the sidewalls of the tanks due to temperature differences between the interior and the exterior of the steel walls, have impacted the exterior coating of both

tanks. Furthermore, Metropolitan personnel inspected the interior of the tank in 1998 and found that the lining was blistered. Where the blisters are broken, the steel walls of the tank are left unprotected and exposed to accelerated corrosion.

In this project phase, Metropolitan forces will perform final design and advertise for the project for a competitive bid.

Actions and Milestones

September 2002 – Board authorization and funding

November 2002 – Complete design and advertise

January 2003 – Return to Board to award construction contract

December 2003 – Complete construction

Financial Statement for Distribution System Rehabilitation Program

A breakdown of Board Action No. 3 for Approp. No. 15377 to fund seven Capital Investment Plan projects for the Distribution System Rehabilitation Program is as follows:

	Previous Board Action No. 2 (Feb. 2002)	Current Board Action No. 3 (Sept. 2002)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 405,000	\$ 79,000	\$ 484,000
Design and Specifications	978,000	298,500	1,276,500
Owner Costs (Program Management, Environmental Docs., Control System Integration, Bidding Process)	553,000	776,500	1,329,500
Water System Operations (Metropolitan Force Installation and Construction, Water Quality)	260,000	4,147,000	4,407,000
Materials and Supplies	790,000	943,000	1,733,000
Incidental Expenses	75,000	626,000	701,000
Professional/Technical Services	375,000	27,000	402,000
Equipment Use	89,000	428,000	517,000
Contracts	318,000	315,000	633,000
Remaining Budget	<u>500,000</u>	<u>1,000,000</u>	<u>1,500,000</u>
Total	<u>\$ 4,343,000</u>	<u>\$ 8,640,000</u>	<u>\$ 12,983,000</u>

Funding Request

Program Name:	Distribution System Rehabilitation Program		
Source of Funds:	Construction Funds (Possibly General Obligation, Revenue Bonds, or Pay-As-You-Go Fund)		
Appropriation No.:	1377	Board Action No.:	3
Requested Amount:	\$ 8,640,000	Capital Program No.:	01212-I
Total Appropriated Amount:	\$ 12,983,000	Capital Program Page No.:	E-35
Total Program Estimate:	\$ 21,127,000	Program Goal:	R-Reliability