



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

8/17/2010 Board Meeting

7-3

Subject

Appropriate \$1.2 million; and authorize final design of repairs to the Allen-McColloch Pipeline (Approp. 15441)

Description

This action authorizes two projects on the Allen-McColloch Pipeline (AMP): (1) Final design and pipe fabrication for Stage 2 repairs to address four distressed prestressed concrete cylinder pipe (PCCP) sections; and (2) Final design to repair eight valve vaults. The four PCCP sections were identified during planned electromagnetic inspections in January 2010. As a result of these inspections, six PCCP sections with broken prestressing wires were identified and subsequently repaired in June 2010. The four PCCP sections covered in this action exhibit cracking identified as “broken backs.” This type of cracking compromises the structural integrity of the pipe sections and exposes the pipe to accelerated rates of corrosion and to eventual leakage. The valve vaults’ concrete walls and roof sections are showing structural cracking and excessive concrete spalling, which exposes the reinforcing steel to accelerated rates of corrosion.

Timing and Urgency

The AMP is a 26-mile-long feeder which delivers treated water from the Diemer plant to south Orange County. A failure of the AMP could interrupt deliveries to member agencies in south Orange County for several days while costly emergency repairs are performed. Repair of the four “broken back” pipe sections will reduce the risk of pipe failure, help avoid disruption of deliveries to member agencies, and take advantage of the planned 7-day shutdown of the Diemer plant in February 2011. Due to the importance of this pipeline in delivering treated water to Municipal Water District of Orange County (MWDOC) and its retail agencies, final design of the repairs is recommended to proceed at this time.

The AMP’s eight valve vaults are constructed of precast concrete, which is showing signs of deterioration. The vaults contain isolation and dewatering valves, air release and vacuum valves, and a service connection. The concrete within the vaults has spalled and the exposed reinforcing steel is corroding. Failure of the vault walls could impede access to the valves and the service connection. In order to provide safe access for regular maintenance of the valves and the service connection, final design of the vault repairs is recommended to proceed at this time.

These two projects have been reviewed with Metropolitan’s updated Capital Investment Plan (CIP) prioritization criteria, and are categorized as an Infrastructure Rehabilitation and Replacement project.

Background

The AMP was constructed in the 1970s. The pipeline originates at the Diemer plant’s finished water reservoir and extends 26 miles south to the El Toro Reservoir in Lake Forest. The northern 17-mile portion of the AMP consists of welded steel pipe. The southern 9-mile portion consists of PCCP that varies in diameter from 84 to 54 inches.

In January 2010, routine electromagnetic inspections conducted on the AMP identified six PCCP sections with prestressing wire breaks ranging from 15 to 100 breaks within single 20-foot sections, and four pipe sections that

were identified as “broken backs,” a condition which exposes the pipe to accelerated rates of corrosion. Repair of the six sections with wire breaks was considered urgent, and was completed this past June. Since the “broken backs” do not require urgent repair, replacement of those sections will proceed expeditiously at the next planned Diemer plant shutdown in February 2011. This approach also avoids a shutdown during peak demand season.

An assessment of the AMP’s valve vault structures identified that the precast concrete wall and roof sections are cracking and showing signs of deterioration. These vault structures house isolation and dewatering valves, air release and vacuum valve assemblies, and a service connection. These concrete vaults are in need of repair in order to provide safe access for maintenance, operation, and dewatering. Staff recommends replacing the walls and roof sections.

Project No. 1: Allen-McColloch Pipeline Repairs, Stage 2 – Final Design Phase and Pipe Fabrication (\$1,100,000)

This action appropriates \$1.1 million and authorizes final design and pipe fabrication of Stage 2 repairs for the AMP. The scope of work includes preparation of specifications and drawings; procurement of materials; pipe fabrication; identification of permitting and right-of-way needs; shutdown preparations; development of a construction cost estimate; receipt of bids; and all activities in advance of award of a construction contract. Requested funds include \$163,000 for final design; \$652,000 for materials procurement and fabrication; \$58,000 for geotechnical investigations, corrosivity testing, and field investigations; \$26,000 for permitting and right-of-way acquisition; \$100,000 for bidding activities and project management; and \$101,000 for remaining budget. All final design and fabrication activities will be performed by Metropolitan staff.

Project No. 2: Allen-McColloch Pipeline Valve Vault Repairs – Final Design Phase (\$100,000)

This action appropriates \$100,000 and authorizes final design to replace precast concrete walls and roofs for eight vault structures on the AMP. The scope of work includes preparation of specifications and drawings; identification of permitting and right-of-way needs; shutdown preparations; development of a construction cost estimate; receipt of bids; and all activities in advance of award of a construction contract. Requested funds include \$65,000 for final design; \$10,000 for permitting and right-of-way acquisition; \$15,000 for project management; and \$10,000 for remaining budget. All final design activities will be performed by Metropolitan staff.

The anticipated cost of final design for these projects is approximately 8 percent of the estimated total construction cost. Engineering Services’ goal for design of projects with estimated construction less than \$3 million is 9 to 15 percent of the total construction cost. The total construction cost for these projects is anticipated to range from \$2.3 million to \$2.7 million. Staff will return to the Board at a later date for award of the construction contract.

Both projects have been evaluated and recommended by Metropolitan’s CIP Evaluation Team. The Valve Vault Repairs project is budgeted within fiscal year 2010/11. The Pipeline Repairs project is not budgeted within fiscal year 2010/11 because results of the electromagnetic inspection were received after adoption of the budget. Upon approval of this action, the fiscal year 2010/2011 capital expenditure plan will be adjusted to reflect the new work. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

These projects are consistent with Metropolitan’s goal for sustainability by enhancing the reliability of existing conveyance and distribution system in order to maintain reliable water deliveries to member agencies.

Project Milestones

October 2010 – Completion of final design for both projects

January 2011 – Completion of pipe fabrication for pipeline repairs

February 2011 – Pipeline and vault repairs during Diemer plant shutdown

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the repair, maintenance, and minor alteration of an existing public facility involving no expansion of use beyond that existing at the time of the Lead Agency's determination, and the installation of new pipeline, or maintenance, repair, restoration, removal or demolition of an existing pipeline as long as the project does not exceed one mile in length. Accordingly, the proposed actions qualify both as a statutory exemption under Section 21080.21 of the Public Resources Code (Section 15282 (h) of the State CEQA Guidelines) and as a categorical exemption (Class 1, Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under both a statutory exemption and a categorical exemption (Class 15282 and Class 1, Section 15301 of the State CEQA Guidelines, respectively).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$1.2 million; and
- b. Authorize final design and pipe fabrication to repair four "broken back" pipe sections and eight valve vaults on the Allen-McColloch Pipeline.

Fiscal Impact: \$1.2 million in budgeted funds under Approp. 15441

Business Analysis: These two projects will protect Metropolitan's assets, increase service reliability to member agencies, and reduce the risk of costly emergency repairs.

Option #2

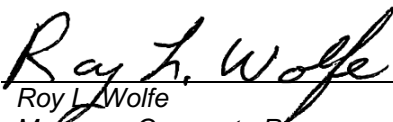

Do not proceed with final design of Stage 2 repairs and the valve vaults at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to enhance reliability of the Allen-McColloch Pipeline. Staff would continue to monitor for leakage, inspect the pipeline when accessible, and make emergency repairs as required. Emergency repairs could result in unplanned disruption of water deliveries from the Diemer plant.

Staff Recommendation

Option #1

 Roy L. Wolfe Manager, Corporate Resources	8/2/2010 Date
 Jeffrey Kightlinger General Manager	8/3/2010 Date

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Location Maps](#)

Financial Statement for Conveyance and Distribution System Rehabilitation Program – Phase II

A breakdown of Board Action No. 24 for Appropriation No. 15441 for repairs of the Allen-McColloch Pipeline* is as follows:

	Previous Total Appropriated Amount (Aug. 2010)	Current Board Action No. 24 (Aug. 2010)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 1,677,200	\$ 53,000	\$ 1,730,200
Final Design	2,050,400	220,000	2,270,400
Owner Costs (Program mgmt., permitting Contract Dev.)	2,952,150	151,000	3,103,150
Construction Inspection and Support	858,100	-	858,100
Metropolitan Force Construction	5,085,100	486,000	5,571,100
Materials and Supplies	1,080,100	150,000	1,230,100
Incidental Expenses	626,400	24,000	650,400
Professional/Technical Services	1,000,500	5,000	1,005,500
Equipment Use	181,200	-	181,200
Contracts	5,522,647	-	5,522,647
Remaining Budget	2,378,203	111,000	2,489,203
Total	\$ 23,412,000	\$ 1,200,000	\$ 24,612,000

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation Program – Phase II		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15441	Board Action No.:	24
Requested Amount:	\$ 1,200,000	Capital Program No.:	15441-I
Total Appropriated Amount:	\$ 24,612,000	Capital Program Page No.:	277
Total Program Estimate:	\$ 53,850,000	Program Goal:	I-Infrastructure Reliability

*The total amount expended to date on repairs for the Allen-McColloch Pipeline is approximately \$10,376,498.

