



- Board of Directors
Engineering and Operations Committee

12/11/2012 Board Meeting

7-6

Subject

Appropriate \$880,000; and award \$473,000 contract to Fibrwrap Construction, Inc. for PCCP joint repairs on the Sepulveda Feeder (Approp. 15471)

Executive summary

This action awards a construction contract to repair a segment of prestressed concrete cylinder pipe (PCCP) on the Sepulveda Feeder. This work has been scheduled to coincide with a planned shutdown of the feeder in April 2013.

Timing and Urgency

In 2006, Metropolitan repaired four distressed PCCP segments on the Sepulveda Feeder using a newly developed technique which involves lining the pipe with layers of carbon fiber impregnated with resin. Based on follow-up testing performed by researchers on similar installations, these early carbon fiber repairs may be vulnerable to water short-circuiting behind the carbon fiber lining, which may cause leaks and potential pipe failure. In February 2012, three of the four previously repaired PCCP segments on the Sepulveda Feeder were upgraded to address this failure mechanism. Staff recommends that the remaining PCCP segment be similarly repaired during a scheduled shutdown in April 2013 in order to reduce the risk of an unplanned shutdown during the peak demand season.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria, and is categorized as an Infrastructure Reliability project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2012/13.

Details

Background

Metropolitan was among the first water agencies in the United States to employ carbon fiber lining to repair PCCP lines. The technique was initially used by Metropolitan to repair the Allen-McColloch Pipeline in 2003. Since that occasion, the use of carbon fiber lining has expanded significantly within the industry, while knowledge of design and performance-related issues of PCCP repairs has also increased.

Based on follow-up testing of some early carbon fiber repairs, an important design feature has been identified which reduces the risk of a previously undetected failure mechanism. This design feature involves lapping of the carbon fiber reinforcement over the pipe joints, which protects against water migration into the pipe wall via a compromised joint. This design feature will be incorporated into an upcoming American Water Works Association (AWWA) standard.

To date, Metropolitan has repaired 46 PCCP segments on nine feeders with carbon fiber lining. In September 2011, Metropolitan's Board authorized final design to upgrade the joints of early carbon fiber repair installations. A total of 43 of these installations now feature the upgraded joint configuration. Final design to repair the remaining PCCP segment on the Sepulveda Feeder has been completed, and staff recommends proceeding with construction at this time to take advantage of a planned shutdown and to reduce the potential risk

of pipe failure. Joint repairs of the final two PCCP segments on the Rialto Pipeline will be the subject of a future board action.

Sepulveda Feeder PCCP Joint Repairs – Construction (\$880,000)

The Sepulveda Feeder is a 96-inch-diameter PCCP line that extends south approximately 42 miles from the Jensen plant in Granada Hills to an interconnection with the Second Lower Feeder in Torrance. The Sepulveda Feeder was constructed in 1970 and delivers treated water into Metropolitan's Central Pool, along with direct service connections to the city of Los Angeles and West Basin Municipal Water District. One PCCP segment with 45 wire breaks that was previously repaired using carbon fiber lining will have its joints upgraded in this project.

Specifications No. 1727 for the Sepulveda Feeder Joint Repairs was advertised for bids on October 10, 2012. As shown in [Attachment 2](#), two bids were received and opened on October 29, 2012. The low bid from Fibrwrap Construction, Inc., in the amount of \$473,000, complies with the requirements of the specifications. The second bid was \$586,000, while the engineer's estimate was \$650,000. The carbon fiber installation work included in this repair requires a patent license, for which there is a limited number of licensees. As a result, a limited number of firms were qualified to submit bids for this work. Due to the specialized nature of the repair, Metropolitan did not establish a Small Business Enterprise participation level for this contract.

This action appropriates \$880,000 and awards a \$473,000 contract to Fibrwrap Construction, Inc. for joint repairs on one PCCP segment on the Sepulveda Feeder. In addition to the amount of the contract, the appropriated funds include \$212,000 for Metropolitan force shutdown activities, which includes dewatering, establishment of clearances, disinfection, and return of the pipeline to service. Requested funds also include \$100,000 for construction inspection; \$17,000 for staff to review contractor submittals, respond to requests for information, and advise the inspectors on technical issues; \$5,000 for preparation of record drawings; \$33,000 for environmental monitoring, public outreach activities, permitting, and project management; and \$40,000 for remaining budget.

Metropolitan staff will perform inspection of the construction contract. For this project, the anticipated cost of inspection is approximately 14.6 percent of the total construction cost. Engineering Services' goal for inspection of construction contracts less than \$3 million is 9 to 15 percent. For this project, the total estimated cost of construction is \$685,000.

This project is included within capital Appropriation No. 15471, the PCCP Replacement and Rehabilitation Program, which was initiated in fiscal year 2011/12. Other work authorized under Appropriation No. 15471 includes a pilot project for PCCP inspection and monitoring, and design of carbon fiber repairs for nine PCCP feeders. With the present action, the total funding for Appropriation No. 15471 will increase from \$14,550,000 to \$15,430,000.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2012/13 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

Project Milestone

May 2013 – Completion of construction of joint repairs on one PCCP segment on the Sepulveda Feeder

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is statutorily exempt under the provisions of CEQA and the State CEQA Guidelines (Section 15282(k)). The maintenance, repair, restoration, removal, or demolition of an existing pipeline as set forth in Section 21080.21 of the Public Resources Code is exempt, as long as the project does not exceed one mile in length. The proposed action is also categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed project involves the funding; design; and minor alterations, reconstruction or repair of existing public facilities with no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1, Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under the Statutory Exemption (Section 15282(k) of the State CEQA Guidelines) and Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$880,000; and
- b. Award \$473,000 contract to Fibwrap Construction, Inc. for PCCP joint repairs on the Sepulveda Feeder.

Fiscal Impact: \$880,000 in capital funds under Approp. 15471

Business Analysis: This option will enhance the reliability of water deliveries to Metropolitan's member agencies and reduce the risk of costly emergency repairs.

Option #2

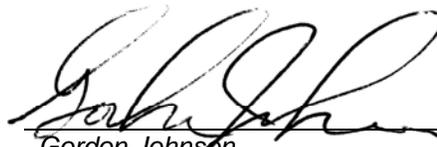
Do not award the construction contract and readvertise in an attempt to receive more favorable bids.

Fiscal Impact: Unknown

Business Analysis: This option may or may not result in lower bids, and would defer repairs until a future shutdown season, further exposing the pipeline to the risk of service interruption.

Staff Recommendation

Option #1


 _____ 11/16/2012
 Date
 Gordon Johnson
 Manager/Chief Engineer,
 Engineering Services


 _____ 11/26/2012
 Date
 Jeffrey Nightlinger
 General Manager

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Abstract of Bids](#)

[Attachment 3 – Location Map](#)

Financial Statement for PCCP Replacement and Rehabilitation Program

A breakdown of Board Action No. 4 for Appropriation No. 15471 for PCCP joint repairs on the Sepulveda Feeder¹ is as follows:

	Previous Total Appropriated Amount (Aug. 2012)	Current Board Action No. 4 (Dec. 2012)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 1,282,000	\$ -	\$ 1,282,000
Final Design	633,000	-	633,000
Owner Costs (Program mgmt., permitting envir. monitoring, public outreach)	1,049,000	33,000	1,082,000
Submittals Review & Record Drwgs	135,000	22,000	157,000
Construction Inspection & Support	673,000	100,000	773,000
Metropolitan Force Construction	1,263,000	207,000	1,470,000
Materials & Supplies	156,000	5,000	161,000
Incidental Expenses	142,800	-	142,800
Professional/Technical Services	4,288,000	-	4,288,000
Equipment Use	10,000	-	10,000
Contracts	3,819,803	473,000	4,292,803
Remaining Budget	1,098,397	40,000	1,138,397
Total	\$ 14,550,000	\$ 880,000	\$ 15,430,000

Funding Request

Program Name:	PCCP Replacement and Rehabilitation Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15471	Board Action No.:	4
Requested Amount:	\$ 880,000	Capital Program No.:	15471
Total Appropriated Amount:	\$ 15,430,000	Capital Program Page No.:	314
Total Program Estimate:	\$ 68,529,000	Program Goal:	I-Infrastructure Reliability

¹ The total amount expended to date for PCCP joint repairs within the distribution system is approximately \$6.86 million.

The Metropolitan Water District of Southern California
Abstract of Bids Received on October 29, 2012 at 2:00 P.M.
Specifications No. 1727
Sepulveda Feeder PCCP Segment Upgrades - 2012

The project consists of modifying previously installed carbon fiber lining by installing new carbon fiber layers over the existing joints on one PCCP segment on the 96-inch-diameter Sepulveda Feeder.

Engineer's Estimate: \$650,000

Bidder and Location	Total
Fibrwrap Construction, Inc., Ontario, CA	\$ 473,000
Slater Waterproofing, Inc., Montclair, CA	\$ 586,000

No SBE (Small Business Enterprise) participation level was established for this contract.

Distribution System

