



● **Board of Directors**
Engineering and Capital Programs Committee

May 12, 2009 Board Meeting

7-2

Subject

Appropriate \$630,000; and authorize final design and pipe fabrication for repair of the Lake Skinner Outlet Conduit (Approp. 15441)

Description

This action authorizes final design and pipe fabrication of a rehabilitation project for three segments of prestressed concrete cylinder pipe (PCCP) on the Lake Skinner Outlet Conduit. Results of a recent electromagnetic inspection revealed three sections with structural deterioration that warrant prompt repair to maintain reliability and to reduce the risk of impacts associated with unplanned outages from pipeline failure.

Timing and Urgency

Repair of these three pipe segments is needed to maintain reliable delivery of water from Lake Skinner to the Robert A. Skinner Water Treatment Plant. A pipeline failure would make the Skinner Plant totally dependent on flows from the San Diego Canal, since the pipeline is the only outlet for water stored in Lake Skinner. Lake Skinner would not be available to provide supplemental water for seasonal peaking, to regulate flows, or as a source of emergency storage. Staff believes this work should proceed now, as the potential risks to the system significantly outweigh any cash flow benefits.

Staff recommends moving forward at this time with final design and pipe fabrication for repair of three pipe segments to protect Metropolitan's assets and maintain service reliability to member agencies. This project is categorized as an Infrastructure Rehabilitation Project and is budgeted within Metropolitan's Capital Investment Plan (CIP). Metropolitan's Board authorized preliminary design in October 2008, which has now been completed. This project has been reviewed with updated CIP prioritization criteria.

Lake Skinner Outlet Conduit Repairs – Final Design Phase and Pipe Fabrication (\$630,000)

The Lake Skinner Outlet Conduit, which is located upstream of the Robert A. Skinner Water Treatment Plant, is a 13.5-foot-diameter PCCP line which was built in 1971. This one-mile-long line conveys untreated water from Lake Skinner to the Skinner plant and to San Diego Pipelines Nos. 3 and 5 for delivery to the San Diego County Water Authority.

In March 2009, the results of recent electromagnetic inspections of the Lake Skinner Outlet Conduit confirmed three distressed pipe segments with 25, 15, and 10 prestressing wire breaks. The distressed pipe segments were identified during a 2006 inspection, but were initially reported to have 20, 15 and 5 wire breaks. These pipe segments are located at two separate locations within the embankments of the Skinner plant Administration Building parking lot area (see [Attachment 2](#)). Since the pipeline operates under relatively low pressure, structural analysis indicated that the repairs did not require immediate repair. Based on the new data and extensive experience with PCCP, staff recommends prompt repair of the pipe segments with 25 wire breaks to reduce the risk of costly emergency repairs. The segments with 15 and 10 wire breaks should also be repaired at this time as wire breaks are likely to increase over time.

In October 2008, Metropolitan's Board authorized preliminary design for repair of the Lake Skinner Outlet Conduit. Based on the locations of the damaged segments and construction efficiency, staff recommends

proceeding with final design and pipe fabrication of the three pipe segments. The distressed pipe segments will be repaired using a combination of steel lining and replacement of segments. The pipe fabrication requires substantial lead-time for fabrication and delivery. Proceeding with fabrication by Metropolitan forces at this time will allow the installation work to occur during a planned January 2010 shutdown. Carbon fiber lining is not effective for the repair areas because the presence of corrosive soil would limit the repair's life span to less than ten years. The life expectancy for the chosen repair method is 40 to 50 years.

This action appropriates \$630,000 and authorizes final design phase activities to repair three PCCP sections on the Lake Skinner Outlet Conduit. The scope of work includes detailed engineering design, preparation of plans and specifications, procurement of materials, pipe fabrication, shutdown coordination, and all activities in advance of award of a construction contract. All work will be performed by Metropolitan staff. Requested funds include \$160,000 for final design; \$242,000 for material procurement and steel pipe fabrication; \$156,000 for program management, environmental permitting, and bidding process; and \$72,000 for remaining budget. The anticipated cost of final design is approximately 13 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 construction cost for this project is anticipated to range from \$1.1 million to \$1.4 million.

Staff will return to the Board at a later date for award of the construction contract. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Maps.

This project is consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing conveyance and distribution system in order to maintain reliable water deliveries in the future.

Project Milestones

July 2009 – Completion of final design

October 2009 – Completion of pipe fabrication

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determination for Options #1 and #2:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve funding, design, minor alterations, and replacement or reconstruction of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, the proposed action involves minor modifications in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 4 Categorical Exemptions (Sections 15301, 15302, and 15304 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under three Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; and Class 4, Section 15304 of the State CEQA Guidelines).

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$630,000; and
- b. Authorize final design and pipe fabrication to repair three pipe segments on the Lake Skinner Outlet Conduit.

Fiscal Impact: \$630,000 in budgeted funds under Approp. 15441

Business Analysis: Repair of three Lake Skinner Outlet Conduit pipe segments is recommended to proceed at this time to maintain reliable delivery of water to the Robert A. Skinner Water Treatment Plant. This project

will protect Metropolitan’s assets, improve employee safety, increase service reliability to member agencies, and reduce the risk of costly emergency repairs.

Option #2

Adopt the CEQA determination and

- a. Appropriate \$363,000; and
- b. Authorize final design and pipe fabrication to repair one pipe segment on the Lake Skinner Outlet Conduit.

Fiscal Impact: \$363,000 in budgeted funds under Approp. 15441

Business Analysis: This option would repair the pipe segment with 25 wire breaks, and defer the remaining pipe segments with 15 and 10 wire breaks pending future electromagnetic inspections. This option would forego an opportunity to enhance reliability by making all needed repairs at one time. This option could lead to higher costs, more extensive repairs, and additional planned system shutdowns.

Staff Recommendation

Option #1


 _____ 4/22/2009
 Roy L. Wolfe Date
 Manager, Corporate Resources


 _____ 4/27/2009
 Jeffrey Hightlinger Date
 General Manager

Attachment 1 – Financial Statement

Attachment 2 – Location Maps

BLA #6616

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

A breakdown of Board Action No. 13 for Appropriation No. 15441 for the Lake Skinner Outlet Conduit Repairs is as follows:

	Previous Total Appropriated Amount (Dec 2008)	Current Board Action No. 13 (May 2009)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 630,500	\$ -	\$ 630,500
Final Design	1,130,800 *	160,000	1,290,800
Owner Costs (Program mgmt, envir. doc., bidding process)	1,462,400	148,000	1,610,400
Construction Inspection & Support	328,500	-	328,500
Metropolitan Force Construction	3,600,000	192,000	3,792,000
Materials and Supplies	570,100	50,000	620,100
Incidental Expenses	482,500	5,000	487,500
Professional/Technical Services	407,500	3,000	410,500
Equipment Use	148,000	-	148,000
Contracts	2,286,000	-	2,286,000
Remaining Budget	1,195,700 *	72,000	1,267,700
Total	\$ 12,242,000	\$ 630,000	\$ 12,872,000

* Reflects reallocation of \$27,000 from Remaining Budget to Final Design for the Temescal Power Plant Access Road Repair Project. This expenditure allowed staff to change the road alignment to avoid environmentally sensitive habitat.

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.:	13
Requested Amount:	\$ 630,000	Capital Program No.:	15441-I
Total Appropriated Amount:	\$ 12,872,000	Capital Program Page No.:	E-15
Total Program Estimate:	\$ 19,200,000	Program Goal:	R-Reliability

