



- Board of Directors
Engineering and Operations Committee

4/9/2013 Board Meeting

7-4

Subject

Appropriate \$1.52 million; and authorize: (1) preliminary design of repairs to the Lakeview Pipeline; and (2) agreement with LSA Associates in an amount not to exceed \$500,000 for environmental documentation (Approp. 15480)

Executive Summary

This action authorizes preliminary design of long-term repairs for the entire length of the Lakeview Pipeline. This pipeline has experienced deflection, which has caused leaky joints and loss of mortar lining. If not addressed with a permanent repair, the pipeline will experience accelerated levels of corrosion, leading to potential failure. This project will enhance reliability of water deliveries to member agencies and reduce the risk of unplanned outages.

Timing and Urgency

Since it entered service in 1973, the Lakeview Pipeline has been shut down on numerous occasions to repair leaking joints. During comprehensive internal inspections conducted in December 2012, staff identified that the 11-foot-diameter welded steel pipe has deflected in excess of 4 inches at over 660 locations and as much as 12 inches at four locations along its 11.5-mile length. In many locations, the pipe is oval-shaped rather than circular, which is caused by a combination of insufficient pipe stiffness and deficient soil embedment around the pipe. This deflection causes pipe leakage at the rubber-gasket joints and cracking of the pipe's interior mortar lining. If not repaired, the lack of mortar lining will result in accelerated corrosion and potential pipeline failure. Rather than repairing individual joints that are leaking, it is recommended that permanent repairs to the entire length of the Lakeview Pipeline proceed expeditiously. The permanent repairs will prevent future pipe leaks, deflection, and will ensure reliable long-term operations by inserting smaller diameter steel liners into the existing pipe and filling the annular space with concrete grout to improve pipe stiffness.

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

Details

Background

The Lakeview Pipeline was installed in 1973 to enable the Skinner service area to receive supplies from the State Water Project (SWP). The line conveys untreated water delivered through the Department of Water Resources' Santa Ana Valley Pipeline and Lake Perris facilities. In combination with the Inland Feeder, Metropolitan uses the Lakeview Pipeline to balance salinity levels in the Skinner area by blending flows from the SWP and the Colorado River Aqueduct. The Lakeview Pipeline also delivers untreated water to two member agency service connections.

Since it was completed, the 11-foot-diameter Lakeview Pipeline has been shut down on numerous occasions to repair leaking joints. The pipeline is approximately 11.5 miles long and is comprised of 1,520 steel pipe segments

with rubber-gasket bell and spigot joints. To date, a total of 139 of the 1,520 pipeline joints have received remedial repairs. Permanent repairs to slip-line the entire pipelines are scheduled to be completed within five years.

During comprehensive internal inspections and 3-dimensional surveys conducted in December 2012, staff measured pipe deflections in excess of 4 inches at over 660 locations and as much as 12 inches at four locations. The pipeline was also observed to be distorted or out of round over much of its length. For an 11-foot diameter pipe with mortar lining, the maximum recommended deflection per American Waterworks Association (AWWA) standard M11 is 3 percent, or 4 inches. Over time, deflection may lead to the development of cracks and delamination of a pipeline's mortar lining, which can expose the pipeline to accelerated levels of corrosion and eventual leakage. While the Lakeview Pipeline can remain in service on an interim basis in its present condition, permanent repairs should proceed expeditiously.

The planned repairs include lining the Lakeview Pipeline with a steel liner designed as a stand-alone pipe section which can accommodate full internal and external pressures on the line. The annular space between the new and existing steel sections will be filled with concrete grout.

Open excavations will be required to access the existing pipeline at approximately 2,500-foot intervals. New 40-foot-long liner segments will be inserted at these locations, moved into position, and welded together. Over 25 access sites are planned along the 11.5-mile-long pipeline route. Some access sites will be located in urban areas where tight-sheet shoring and close coordination with the surrounding communities will be required. In addition, installation of a sectionalizing valve will allow deliveries to continue to member agency service connections while the repairs are underway. The estimated duration for construction of permanent repairs of the entire length of the Lakeview Pipeline is 36 months.

Lakeview Pipeline Repairs – Preliminary Design Phase (\$1,520,000)

Planned preliminary design activities include right-of-way planning; geotechnical investigations; hydraulic analyses; identification of staging areas for isolation bulkheads and roll-out sections; identification of traffic control and permit requirements; preparation of preliminary layout drawings; development of final design criteria; and development of a construction cost estimate.

The repair work will require preparation of an environmental impact report (EIR) due to anticipated temporary environmental impacts to biological resources, noise, light, and air quality, some of which cannot be reduced to a level of less than significant. The planned scope of work to prepare environmental documentation includes performing biological and habitat surveys; identification of potential impacts; development of mitigation and monitoring plans; preparation and issuance of the document for public comment; and preparation of responses to comments received during the review period.

This action appropriates \$1.52 million and authorizes preliminary design phase activities for repairs to the Lakeview Pipeline. Requested funds include \$575,000 for preliminary design; \$15,000 for hydraulic analyses; \$40,000 for geotechnical investigations; \$500,000 for preparation of the environmental documentation; \$60,000 for review and distribution of the EIR for public comment and preparation of responses; \$60,000 for a third-party value engineering assessment; \$66,000 for permitting and project management; and \$204,000 for remaining budget. All design activities will be performed by Metropolitan staff, while the environmental documentation is recommended to be prepared by LSA Associates, as discussed below. Staff will return to the Board at a later date for certification of the EIR and authorization of final design.

Agreement for Preparation of Environmental Documentation – LSA Associates

Preparation of environmental documentation and technical assistance with acquisition of permits is recommended to be performed by a specialized consulting firm, LSA Associates, under a new professional services agreement. LSA Associates was selected through a competitive process via Request for Qualifications No. 956. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 18 percent. The planned scope of work includes preparing the environmental documentation; performing biological and habitat surveys (i.e., burrowing owls, kangaroo rats); and providing technical support such as identifying temporary

construction impacts or environmental impacts in areas such as air quality, noise, and traffic. The estimated cost for these services is \$500,000.

This action authorizes an agreement with LSA Associates, in an amount not to exceed \$500,000, to prepare environmental documentation for the Lakeview Pipeline repairs.

Summary

This action appropriates \$1.52 million, authorizes preliminary design of repairs to the Lakeview Pipeline, and authorizes a professional services agreement with LSA Associates. All work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the FY 2012/13 capital expenditure plan. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

These projects are included within capital Appropriation No. 15480, the Conveyance and Distribution System Rehabilitation Program – FY 2012/13 through FY 2017/18. Other projects authorized under Appropriation No. 15480 include the Orange County Conveyance and Distribution Service Center. With the current action, the total funding for Appropriation No. 15480 will increase from \$480,000 to \$2 million.

Project Milestone

January 2014 – Completion of preliminary design and environmental documentation for the Lakeview Pipeline repairs

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 categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This 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. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$1.52 million;
- b. Authorize preliminary design of repairs to the Lakeview Pipeline; and
- c. Authorize agreement with LSA Associates, in an amount not to exceed \$500,000, for preparation of environmental documentation.

Fiscal Impact: \$1.52 million in capital funds under Approp. 15480

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

Option #2

Do not proceed with the Lakeview Pipeline repairs at this time.

Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to protect Metropolitan's assets, enhance delivery reliability to member agencies, and reduce the risk of costly emergency repairs.

Staff Recommendation

Option #1



Gordon Johnson
Manager/Chief Engineer,
Engineering Services

3/22/2013
Date



Jeffrey Nightlinger
General Manager

3/27/2013
Date

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Location Map](#)

Ref# es12623103

Financial Statement for Conveyance and Distribution System Rehabilitation – FY 2012/13 Through FY 2017/18

A breakdown of Board Action No. 2 for Appropriation No. 15480 for the Lakeview Pipeline Repairs¹ is as follows:

	Previous Total Appropriated Amount (Sept. 2012)	Current Board Action No. 2 (Apr. 2013)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 32,000	\$ 630,000	\$ 662,000
Final Design	-	-	-
Owner Costs (Program mgmt., permitting, envir. doc.)	82,000	120,000	202,000
Construction Inspection & Support	-	-	-
Metropolitan Force Construction	-	-	-
Materials & Supplies	-	-	-
Incidental Expenses	1,000	6,000	7,000
Professional/Technical Services	302,000	-	302,000
LSA Associates	-	500,000	500,000
Value Engineering Firm	-	60,000	60,000
Equipment Use	-	-	-
Contracts	-	-	-
Remaining Budget	63,000	204,000	267,000
Total	\$ 480,000	\$ 1,520,000	\$ 2,000,000

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation – FY 2012/13 Through FY 2017/18		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15480	Board Action No.:	2
Requested Amount:	\$ 1,520,000	Capital Program No.:	15480-I
Total Appropriated Amount:	\$ 2,000,000	Capital Program Page No.:	40
Total Program Estimate:	\$ 17,210,700	Program Goal:	I-Infrastructure Reliability

¹ This action is the initial appropriation for the Lakeview Pipeline Repairs.

Distribution System

