



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

7/9/2013 Board Meeting

7-5

Subject

Appropriate \$1.15 million; and authorize: (1) final design of filter outlet conduit seismic upgrades at the Robert B. Diemer Water Treatment Plant; and (2) amendment to agreement with URS Corporation (Approp. 15380)

Executive Summary

This action authorizes final design of seismic upgrades to the east filter outlet conduit at the Robert B. Diemer Water Treatment Plant. This improvement will reduce the risk of delivery interruptions to member agencies within the Diemer service area due to a major seismic event. This action also authorizes an amendment to an existing agreement to provide design support for the project.

Timing and Urgency

Metropolitan has an ongoing program to evaluate the seismic stability of its facilities in order to maintain water delivery reliability. While Metropolitan facilities have always been designed to meet up-to-date codes and regulations that were in place at the time of their construction, building codes and engineering practices are periodically updated, particularly following a major earthquake.

A seismic assessment of the Diemer plant's east filter outlet conduit identified that the stability of the slope below the pipeline needs to be improved to secure the integrity of the line. To reduce the risk of water delivery interruptions following a major earthquake, staff recommends proceeding with final design at this time.

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 2013/14.

Details

Background

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd). In 1969, the plant was expanded to its present treatment capacity of 520 mgd. It delivers a blend of waters from the Colorado River and State Water Project to Orange County and to Metropolitan's Central Pool portion of the distribution system.

The Diemer plant is located on the top of a hill in the city of Yorba Linda. The plant was originally constructed by excavating 55 to 70 feet of native material from the site's ridge and filling the adjacent ravines to produce a large level pad. While the fill areas were constructed in accordance with grading practices of that time, the fill was not benched into competent rock as current seismic practices would require. Further, the Whittier Fault is located approximately one-third mile north of the Diemer plant. This fault is deemed capable of generating a 6.8 magnitude earthquake. To minimize the risk of damage to the plant during a major earthquake, staff initiated a seismic assessment program in 2004 to identify and upgrade structures and major conduits which are potentially at risk. Of the 32 structures and major conduits located at the Diemer plant, 25 facilities were found to be structurally adequate or have been previously upgraded, while seven facilities are presently being addressed. Seismic upgrades to the finished water reservoir and east washwater tank are currently under construction, with

completion scheduled for September 2013. Final design of structural upgrades to the Diemer Administration Building and the Filter Buildings is also ongoing, as is preliminary design of slope remediation below the Washwater Reclamation Plant. Seismic upgrade of a section of the Second Lower Feeder will be the subject of a future action. This action moves forward with final design of seismic upgrades to the filter outlet conduit.

Diemer Filter Outlet Conduit Seismic Upgrades – Final Design Phase (\$1,150,000)

A section of the Diemer plant's filter outlet conduit traverses below the plant's east-west access road along the north side of Basin No. 4, where it passes through a zone of fill material. Seismic analyses have concluded that in a major earthquake, the soil which supports this 10-foot-diameter pipeline could slide down the plant's north slope, potentially rupturing the line. The planned remediation project will construct a 450-foot-long concrete caisson retaining wall to restrain the soil which supports the pipeline. Construction of the retaining wall will involve the installation of approximately sixty 6-foot-diameter caissons, each with a depth of up to 100 feet below grade.

In January 2007, Metropolitan's Board authorized preliminary design of seismic upgrades to the filter outlet conduit. This effort was coordinated with other upgrade activities at the Diemer plant, and has now been completed. Staff recommends proceeding with final design at this time.

Planned final design phase activities include conducting detailed field investigations, which includes potholing and utility identification; preparation of drawings and specifications; third-party value engineering review; receipt of competitive bids; development of a construction cost estimate; and all other activities in advance of award of a construction contract. Since the plant's north slope is adjacent to Chino Hills State Park, preparation of environmental documentation is underway to address the required mitigation for the retaining wall installation, and for other near-term construction activities at the Diemer plant. Final design is planned to be performed by Metropolitan staff, with specialized technical support by URS Corporation, as described below.

This action appropriates \$1.15 million and authorizes final design phase activities for seismic upgrades to the filter outlet conduit at the Diemer plant. The requested funds include \$675,000 for final design; \$278,000 for value engineering, environmental documentation and permitting, receipt of bids, and project management; and \$197,000 for remaining budget. The total cost for final design is approximately 12 percent of the estimated construction cost. Engineering Service's goal for design of projects with construction cost greater than \$3 million is 9 to 12 percent. The construction cost for this project is anticipated to range from \$5.6 million to \$7 million.

The total estimated cost to complete this project, including the amount expended to date, current funds requested, and future construction costs, is anticipated to range from \$8.5 to 10.5 million.

Staff will return to the Board at a later date for award of the construction contract.

Amendment to Agreement for Geotechnical Design Services – URS Corporation

The geotechnical and structural design of the filter outlet conduit seismic upgrades is recommended to be performed by URS. URS was competitively selected via RFQ No. 931 to provide specialized geotechnical and structural support for facilities at the Diemer plant. Specifically, URS has conducted geotechnical analyses for seismic upgrades at four locations throughout the plant, including the filter outlet conduit and the Washwater Reclamation Plant. For the filter outlet conduit upgrades, the planned scope of work includes detailed seismic analysis and engineering design, preparation of drawings and specifications, support of the third-party value engineering review, and providing technical assistance during bidding. This work will be performed by URS through an amendment to its existing professional services agreement. The estimated cost for these services is \$500,000.

In addition to providing final design support for the filter outlet conduit upgrades, staff recommends that URS perform preliminary design of seismic upgrades to the Diemer Washwater Reclamation Plant through the planned amendment to the existing agreement. No funds are required in this action to perform preliminary design for the Washwater Reclamation Plant, as sufficient funds were previously appropriated. The estimated cost for this effort is \$380,000.

This action authorizes an increase of \$880,000 to the existing agreement with URS, for a new not-to-exceed total of \$1,125,000, to provide geotechnical and structural design services for final design of the Diemer Filter Outlet Conduit Seismic Upgrades, and for preliminary design of the Diemer Washwater Reclamation Plant Seismic Upgrades. For this agreement, Metropolitan has established an SBE participation level of 6 percent.

Summary

This action appropriates \$1.15 million, authorizes final design of seismic upgrades to the filter outlet conduit at the Diemer plant, and authorizes an amendment to the existing agreement with URS Corporation for design services. This work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and is categorized as an Infrastructure Reliability project. Funds for this action are available within the fiscal year 2013/14 capital expenditure plan. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

This project is included within capital Appropriation No. 15380, the Diemer Improvements Program, which was initiated in fiscal year 2001/02. With the present action, the funding for Appropriation No. 15380 will increase from \$112,146,600 to \$113,296,600.

Project Milestone

October 2014 – Completion of final design of the Diemer filter outlet conduit seismic upgrades

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 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 for a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines). In addition, the proposed action is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is exempt from CEQA pursuant to Section 15306. In addition, the fiscal aspect of the proposed action is not subject to CEQA (Section 15378(b)(4) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action is defined as both categorically exempt and not a project under CEQA, and

- a. Appropriate \$1.15 million;
- b. Authorize final design of seismic upgrades to the Diemer filter outlet conduit; and
- c. Authorize an increase of \$880,000 to the existing agreement with URS Corporation, for a new not-to-exceed total of \$1,125,000.

Fiscal Impact: \$1.15 million in capital funds under Approp. 15380

Business Analysis: This option will enhance reliability and continued operation of the Diemer plant in the event of a major earthquake.

Option #2

Do not proceed with final design of the Diemer filter outlet conduit seismic upgrades at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to enhance reliability of the Diemer plant in the event of a major earthquake.

Staff Recommendation

Option #1


 _____ 6/17/2013
 Gordon Johnson Date
 Manager/Chief Engineer
 Engineering Services


 _____ 6/25/2013
 Jeffrey Kichtlinger Date
 General Manager

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Financial Statement for Diemer Improvements Program

A breakdown of Board Action No. 24 for Appropriation No. 15380 for the Diemer Filter Outlet Conduit Seismic Upgrades project¹ is as follows:

	Previous Total Appropriated Amount (Feb. 2013)	Current Board Action No. 24 (July 2013)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 1,930,200	\$ -	\$ 1,930,200
Final Design	8,419,900	175,000	8,594,900
Owner Costs (Program mgmt., bidding)	8,068,159	208,000	8,276,159
Submittals Review & Record Drwgs.	186,204	-	186,204
Construction Inspection & Support	6,278,168	-	6,278,168
Metropolitan Force Construction	2,211,600	-	2,211,600
Materials & Supplies	831,916	-	831,916
Incidental Expenses	363,167	10,000	373,167
Professional/Technical Services	10,953,375	-	10,953,375
URS Corp.	-	500,000	xx
Value Engineering	-	60,000	xx
Equipment Use	96,608	-	96,608
Contracts	71,220,553	-	71,220,553
Remaining Budget	1,586,750 ²	197,000	1,783,750
Total	\$ 112,146,600	\$ 1,150,000	\$ 113,296,600

Funding Request

Program Name:	Diemer Water Treatment Plant - Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15380	Board Action No.:	24
Requested Amount:	\$ 1,150,000	Budget Page No.:	297
Total Appropriated Amount:	\$ 113,296,600	Total Program Estimate:	\$285,285,000

¹ The total amount expended to date on the Diemer filter outlet conduit seismic upgrades is approximately \$900,000. The total estimated cost to complete this project, including the amount expended to date, current funds requested, and future construction costs, is anticipated to range from \$8.5 million to \$10.5 million.

² Includes previous reallocation of \$138,000 from Remaining Budget to the the Diemer Electrical Upgrades, Stage 2 for increased final design efforts to incorporate changes needed to accommodate the Diemer Oxidation Retrofit Program.

Distribution System

