



- Board of Directors
Engineering and Operations Committee

1/13/2015 Board Meeting

7-3

Subject

Appropriate \$710,000; and authorize design to extend electrical service to the East Dam area at Diamond Valley Lake (Approp. 15480)

Executive Summary

This action authorizes design to extend permanent electrical service to the dam monitoring system for the East Dam at Diamond Valley Lake (DVL), and to the East Marina area. This project will provide an aboveground 12 kV electrical service to the area from Southern California Edison (SCE).

Timing and Urgency

The three rock-fill dams which form DVL are monitored continuously by a sophisticated dam monitoring system that transmits performance data through Metropolitan's Wide Area Network (WAN) to the Operation Control Center at Eagle Rock and to the Headquarters Building at Union Station. This data is collected to provide early indication of a potential problem within the dam embankments or foundations, and to prepare mandatory reports of the dams' performance for submission to the California Division of Safety of Dams (DSOD).

While permanent power to the dam monitoring and WAN systems at the Owen (West) Dam and the Saddle Dam were installed during original DVL construction, only temporary power was provided for the East Dam in anticipation of utility upgrades within the adjacent recreation area. These temporary power systems were not intended to support permanent structures. As a result, numerous electrical outages have occurred in the years since the reservoir was completed. Permanent utility power from SCE is needed for the East Dam area to enhance reliability of the dam monitoring and WAN systems. This upgrade will also enhance security and public safety within the East Marina area.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria and is categorized as an Infrastructure Upgrade project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2014/15.

Details

DVL is Southern California's largest surface water reservoir. It was completed in 2000, and has a maximum storage capacity of 810,000 acre-feet. DVL is located south of the city of Hemet in Riverside County.

An extensive dam monitoring system was installed during construction of the three dams at DVL in order to provide early warning signs of dam distress and to monitor real-time performance of the embankments and foundations. Seepage weirs and turbidimeters were installed in manholes along the downstream toe of each of the dams. These weirs measure changes in seepage flow rates, while the turbidimeters measure seepage water turbidity. Changes in seepage flow rate and turbidity are important factors in determining dam performance and safety, and are indicators of potential problems. This information is collected to prepare mandatory reports on the dams' performance for submission to DSOD.

Temporary power lines were installed during original construction of the East Dam to supply electricity to the permanent seepage monitoring structures. The temporary timber poles are worn, and several have been replaced.

Metropolitan forces have repaired the power lines numerous times to maintain electrical service to the seepage weirs. The frequency of power outages is increasing.

Metropolitan's WAN transmits telephone, voice, data, and video communication between all Metropolitan facilities. The WAN was constructed in the late 1990s, and presently comprises a network of 36 microwave transmission towers located through Southern California, including one at the DVL East Marina, north of the East Dam. Along with a security surveillance system and other East Marina recreation amenities, the WAN microwave tower is powered by two diesel generators that operate continuously and require containment to comply with their operating permits.

Permanent improvements are needed for the electrical system at the East Dam area to reliably support the dam safety monitoring equipment, WAN system, and security throughout the area. Staff recommends moving forward with improvements to provide permanent SCE electrical service to the East Dam area.

DVL East Dam Electrical Upgrades – Design Phase (\$710,000)

Planned improvements at the East Dam area include the extension of permanent overhead 12 kV power lines to five seepage monitoring structures, to the microwave communication tower, and to the East Marina area. SCE will extend the 12 kV lines and install transformers, meters, and service panels. Metropolitan's construction contract will extend electrical lines from the powered equipment to the new panels, and will switch over the equipment from the temporary electrical systems to the new utility service.

Planned design phase activities include: conducting field surveys, mapping, and preparing easements; preparing drawings and specifications for the construction contract; establishing a utility agreement with SCE; preparing environmental documentation; obtaining approval from the Southwestern Riverside County Multi-Species Habitat Conservation Plan's Reserve Management Committee; and advertising for competitive bids. Design of the improvements will be performed by Kennedy/Jenks Consultants, as discussed below.

This action appropriates \$710,000 and authorizes design phase activities to extend electrical service to the DVL East Dam area. Requested funds include: \$358,000 for design; \$84,000 for environmental surveys and permitting; \$242,000 for surveying, receipt of bids, negotiations with SCE, and project management; and \$26,000 for the remaining budget. The final design cost as a percentage of the estimated construction cost is approximately 9.4 percent. Engineering Services' goal for design of projects with construction costs more than \$3 million is 9 to 12 percent. The estimated construction cost for this project is anticipated to range from approximately \$3.5 million to \$4.1 million. Staff will return to the Board at a later date for authorization of the utility agreement with SCE and for award of the construction contract.

The total estimated cost to complete the East Dam electrical upgrades, including the current funds requested and future construction cost, is anticipated to range from \$4.3 million to \$4.9 million.

Design Services – Kennedy/Jenks Consultants (No Action Required)

Design of the DVL East Dam Electrical Upgrades will be performed by Kennedy/Jenks Consultants under an existing board-authorized agreement. The planned scope of work includes development of final design criteria; preparation of drawings and specifications; development of a construction cost estimate, and technical assistance during the bid period. The estimated cost for these services is \$200,000. No board action is required at this time.

For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 18 percent. Kennedy/Jenks Consultants has agreed to meet this level of participation. The subconsultants under this agreement are listed in [Attachment 3](#).

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2014/15 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Location Map, and [Attachment 3](#) for the list of subconsultants.

The DVL East Dam Electrical Upgrades project is included within capital Appropriation No. 15480, the Conveyance and Distribution System Rehabilitation Appropriation – FY 2112/13 Through FY 2017/18, which

was initiated in fiscal year 2012/13. With the present action, the total funding for Appropriation No. 15480 will increase from \$19,960,000 to \$20,670,000.

Project Milestone

September 2015 – Completion of design of electrical upgrades for the DVL East Dam area

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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 involves the funding of a study and minor alteration to an existing public facility with negligible or no expansion of use and no possibility of significantly impacting the physical environment, including the construction of limited numbers of new, small facilities or structures, and minor modifications in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees. In addition, the proposed action consists of basic data collection and resource evaluation activities, which does 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 the Class 1, Class 3, Class 4, and Class 6 Categorical Exemptions (Sections 15301, 15303, 15304, and 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under four Categorical Exemptions (Class 1, Section 15301; Class 3, Section 15303; Class 4, Section 15304; and Class 6, Section 15306 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 categorically exempt, and

- a. Appropriate \$710,000; and
- b. Authorize design to extend electrical service to the East Dam area at Diamond Valley Lake.

Fiscal Impact: \$710,000 of capital funds under Approp. 15480

Business Analysis: This option will enhance reliability in collecting data required to be submitted to DSOD under DVL's operating permit, enhance public safety, and reduce the risk of unplanned electrical outages at the East Dam area.

Option #2

Do not proceed with the electrical upgrades at this time.

Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to enhance reliability in collecting required dam monitoring data, and to provide reliable electrical service to the East Dam area.

Staff Recommendation

Option #1



Gordon Johnson
Manager/Chief Engineer
Engineering Services
12/16/2014
Date



Jeffrey Kightlinger
General Manager
12/23/2014
Date

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Attachment 3 – Subconsultants to Kennedy/Jenks Consultants

Ref# es12634337

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

A breakdown of Board Action No. 10 for Appropriation No. 15480 for the DVL East Dam Electrical Upgrades¹ is as follows:

	Previous Total Appropriated Amount (Nov. 2014)	Current Board Action No. 10 (Jan. 2015)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 712,000	\$ -	\$ 712,000
Final Design	1,102,000	158,000	1,260,000
Owner Costs (Program mgmt., permitting, bidding, envir. doc.)	1,071,779	292,000	1,363,779
Submittals Review & Record Drawings	406,000	-	406,000
Construction Inspection & Support	1,503,000	-	1,503,000
Metropolitan Force Construction	1,399,000	-	1,399,000
Materials & Supplies	255,000	-	255,000
Incidental Expenses	37,000	-	37,000
Professional/Technical Services	1,249,000	-	1,249,000
Kennedy/Jenks Consultants	-	200,000	200,000
Environmental Surveys	-	34,000	34,000
Right of Way	11,000	-	11,000
Equipment Use	-	-	-
Contracts	10,082,555	-	10,082,555
Remaining Budget	2,131,666	26,000	2,157,666
Total	\$ 19,960,000	\$ 710,000	\$ 20,670,000

Funding Request

Appropriation Name:	Conveyance and Distribution System Rehabilitation Appropriation – FY 2012/13 Through FY 2017/18		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15480	Board Action No.:	10
Requested Amount:	\$ 710,000	Budget Page No.:	274
Total Appropriated Amount:	\$ 20,670,000	Total Appropriation Estimate:	\$ 255,000,0000

¹ This is the initial appropriation for the DVL East Dam Electrical Upgrades. The total estimated cost to complete this project, including the current funds requested and future construction cost, is anticipated to range from \$4.3 million to \$4.9 million.

Distribution System



Subconsultants for Agreement No. 145994 – Kennedy/Jenks Consultants

Subconsultants currently authorized under this agreement are as follows:

Consultant	Specialty	Business Enterprise Certifications
CPM Construction	Cost Estimating and Scheduling	SBE/RBE
Staheli Trenchless Consultants	Tunnel/Trenchless Technologies	SBE
Flow Science Incorporated	Fluid Dynamics	SBE/RBE
GeoPentech	Geotechnical Engineering	SBE/RBE
Hilts Consulting Group	Structural Engineering and Reservoir Design	SBE/RBE
NtwoS, LP	High Voltage Electrical Engineering Design and Consulting	SBE/RBE
Michael Willits Architects	Architecture	
Kazarian Associates	Health and Safety Engineering	SBE/RBE
Degenkolb Engineers	Structural Engineering	RBE
Project Line Technical Services	Process Mechanical Engineering	SBE/RBE
TJC & Associates	Electrical, Instrumentation and Controls	SBE
Todd Engineers	Hydrology and Hydrogeologic Engineering	SBE
BRADY	Engineering Design	SBE/RBE
Nuvis	Landscape Architecture	SBE/RBE
FJS Cable Engineering	Engineering Design	RBE
AG Baggett and PJ Weber, Inc.	Water Resource Consulting	SBE
Vector Delta Design Group	Alternative Energy	SBE/RBE
John Robinson Consulting, Inc.	Recycled Water, Design, and Project Management	SBE/RBE
Minagar & Associates, Inc.	Traffic, Civil, and Electrical Engineering	SBE

SBE: Small Business Enterprise

RBE: Regional Business Enterprise