



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

6/11/2013 Board Meeting

7-7

Subject

Appropriate \$270,000; and authorize final design to relocate the Intake Pumping Plant 2.4 kV power line (Approp. 15438)

Executive Summary

This action authorizes final design to relocate a power transmission line which serves Intake Pumping Plant and several remote Colorado River Aqueduct (CRA) facilities. This line is the primary source of power to these facilities.

Timing and Urgency

The Intake Pumping Plant's 2.4 kV power line needs to be replaced and relocated because the existing wood-pole line has deteriorated due to severe weathering in the desert environment during over 50 years of service. The existing poles are difficult to access and require frequent repairs. The power line is the primary source of power to CRA facilities located in the vicinity of Intake Pumping Plant.

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 fiscal year 2012/13.

Details

Background

The electrical power for the CRA's five pumping plants is transmitted from Hoover Dam via 237 miles of 230 kV overhead power lines. At each of the pumping plants, this transmission voltage is stepped down to a lower distribution voltage for use by the main pumps, the cooling water and fire protection pumps, the potable water treatment and delivery system, communication systems, lighting, and the sump pumps which prevent flooding of the plants.

At Gene Pumping Plant, the incoming power is stepped down to 2.4 kV and distributed via a 2-mile-long overhead power line to Gene Wash Dam, the Black Metal Mountain communication towers, Intake Village, and Intake Pumping Plant. This wood-pole line was installed during the original CRA construction as a telephone line stretching over mountainous terrain from Gene Pumping Plant to Intake Pumping Plant. The existing wooden poles are 40 feet in height. In the 1950s, this line was upgraded to carry power cables by retrofitting the poles with extensions and cross arms to support insulators and provide adequate clearance between the power and communications cables. These pole extensions added 10 feet to the height of the original wood poles.

This existing wood-pole line has deteriorated substantially over the years due to weathering in the harsh desert environment. The pole cross arms, insulators, and pole extensions require frequent repairs. In addition, some poles are inaccessible by motor vehicle, which increases repair times and costs. The line needs to be replaced to maintain a reliable power supply to Intake Pumping Plant and other key CRA facilities.

In April 2010, Metropolitan's Board authorized preliminary design phase activities to replace the line, including development of a new more accessible alignment. Staff has completed preliminary design and recommends proceeding with final design at this time.

Intake Pumping Plant 2.4 kV Power Line Relocation – Final Design Phase (\$270,000)

Planned upgrades include relocation of the existing power line to a new alignment that will facilitate maintenance and repairs. The existing line will be relocated from steep mountain slopes to areas adjacent to patrol and maintenance roads within existing Metropolitan fee property. The relocated power line will be approximately 2.5 miles long. Each pole will be fabricated of galvanized steel and will be approximately 40 feet in height.

Planned final design phase activities include design of the overhead electric lines per the National Electric Safety Code and state of California regulations, design of pole foundations and temporary systems during construction, preparation of drawings and specifications, receipt of competitive bids, and all other activities in advance of award of a construction contract. Final design is recommended to be performed by Lee & Ro, Inc., as discussed below.

This action appropriates \$270,000 and authorizes final design for relocation of the Intake Pumping Plant's 2.4 kV power line. The requested funds include \$185,000 for final design; \$52,000 for bidding, permitting, and project management; and \$33,000 for remaining budget. The final design cost as a percentage of the estimated construction cost is approximately 13.2 percent. Engineering Services' goal for design of projects with construction cost less than \$3 million is 9 to 15 percent. 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.

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 and [Attachment 2](#) for the Location Map.

This work is included within capital Appropriation No. 15438, the CRA Reliability Program – FY 2006/07 Through 2011/12, which was initiated in fiscal year 2006/07. Other projects authorized under Appropriation No. 15438 include the CRA 6.9kV Fault Current Protection Upgrades; CRA 230 kV Disconnect Switches Replacement; and the Eagle Mountain, Iron Mountain, and Hinds Standby Generator Replacements. With the present action, the total funding for Appropriation No. 15438 will increase from \$34,354,000 to \$34,624,000.

Engineering Design Services (Lee & Ro, Inc.) – No Action Required

Final design for relocation of the Intake Pumping Plant 2.4 kV power line is recommended to be performed by Lee & Ro, Inc., under an existing board-authorized agreement. This work requires experience in high-voltage electrical systems, and Metropolitan has insufficient technical staff in-house to conduct the design. Lee & Ro was selected through a competitive process via Request for Qualifications No. 927. The planned scope includes detailed design, preparation of plans and specifications, and technical support during the bidding period. The estimated cost to provide these services is \$170,000. No amendment to the existing Lee & Ro agreement is required for this work. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 18 percent. Lee & Ro is an SBE firm, and thus achieves 100 percent participation.

Project Milestone

December 2013 – Completion of final design for the Intake Pumping Plant 2.4 kV power line relocation

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 project involves the funding; final design; and minor alterations, reconstruction or replacement of existing public facilities with no expansion of use and no possibility of significantly impacting the physical environment. In addition, the proposed project 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).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$270,000; and
- b. Authorize final design to relocate the Intake Pumping Plant 2.4 kV power line.

Fiscal Impact: \$270,000 of capital funds under Approp. 15438

Business Analysis: This option will maintain reliable power service to critical CRA facilities located near Intake Pumping Plant, and will reduce the risk of costly emergency repairs.

Option #2

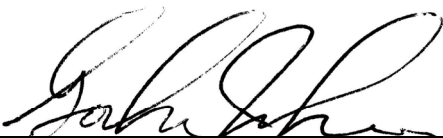
Do not authorize the power line relocation at this time.

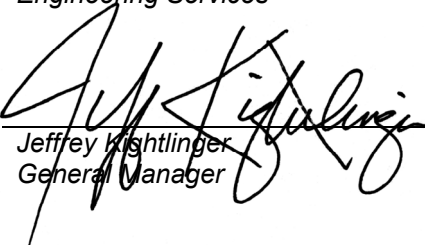
Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to maintain reliable power service to Intake Pumping Plant.

Staff Recommendation

Option #1


 _____ 5/20/2013
 Gordon Johnson Date
 Manager/Chief Engineer
 Engineering Services


 _____ 5/29/2013
 Jeffrey Wightlinger Date
 General Manager

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Financial Statement for CRA Reliability Program – FY 2006/07 Through FY 2011/12

A breakdown of Board Action No. 24 for Appropriation No. 15438 for the Intake Pumping Plant Power Line Relocation¹ is as follows:

	Previous Total Appropriated Amount (June 2013)	Current Board Action No. 24 (June 2013)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 2,221,800	\$ -	\$ 2,221,800
Final Design	2,496,900	15,000	2,511,900
Owner Costs (Program mgmt., permitting, bidding)	2,776,090	51,000	2,827,090
Submittals Review & Record Drwgs	560,600	-	560,600
Construction Inspection & Support	2,129,000	-	2,129,000
Metropolitan Force Construction	3,932,700	-	3,932,700
Materials & Supplies	2,995,405	-	2,995,405
Incidental Expenses	137,800	1,000	138,800
Professional/Technical Services	1,912,000	-	1,912,000
Lee & Ro, Inc.	-	170,000	170,000
Equipment Use	25,505	-	25,505
Contracts	14,349,537	-	14,349,537
Remaining Budget	816,663	33,000	849,663
Total	\$ 34,354,000	\$ 270,000	\$ 34,624,000

Funding Request

Program Name:	CRA Reliability Program – FY 2006/07 Through FY 2011/12		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15438	Board Action No.:	24
Requested Amount:	\$ 270,000	Budget Page No.:	292
Total Appropriated Amount:	\$ 34,624,000	Total Program Estimate:	\$ 64,826,000

¹ The total amount expended to date on the Intake Pumping Plant Power Line Relocation is \$240,000.

Location Map

