



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

2/12/2019 Board Meeting

8-2

Subject

Award \$16,452,832 contract to Baker Electric, Inc. to replace the 6.9 kV power cables at each Colorado River Aqueduct pumping plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

This action awards a construction contract to replace the 6.9 kV power cables at Metropolitan's five Colorado River Aqueduct (CRA) pumping plants. Replacement of these cables is needed to ensure continued reliable operation of the CRA.

Timing and Urgency

The 6.9 kV power cables are a critical component of the CRA pumping plants. All of the electric power used to operate the CRA's main pumps, as well as power the pumping plant villages, fire water pumps, and other auxiliary systems is transmitted by way of these cables. Staff recommends moving forward with the replacement of these 60- to 80-year-old cables to ensure reliable operation of the CRA pumping plants.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included in the Colorado River Aqueduct Reliability Program. Funds for this action are available within the appropriation for planned biennial CIP expenditures for fiscal years 2018/19 and 2019/20.

Details

Background

The CRA is a 242-mile-long conveyance system that transports water from the Colorado River to Lake Mathews. It consists of five pumping plants; 124 miles of tunnels, siphons, and reservoirs; 63 miles of canals; and 55 miles of conduits. The aqueduct was constructed in the late 1930s and was placed into service in 1941. The pumping capacity along the aqueduct was increased three times over the years, the most recent pump installation taking place in 1959.

Each of the five CRA pumping plants has nine pumps and motors. Power is transmitted to the motors via 3-inch-diameter 6.9 kV cables, which run through a tunnel that connects each switch house to each pump house. The quantity of cables varies from nine to twenty-seven per plant and varies in length from approximately 200 feet to 650 feet. These cables were installed in four phases from 1939 through 1959, and consist of a copper core wrapped with oil-soaked paper strips, covered with a lead jacket.

After 60-80 years in continuous service, the power cables have deteriorated and need to be replaced. Oil has begun to leak through cracks in the lead jacket at the cable connection joints and termination points. Frequent repairs are required to address the leaks and maintain the cables' insulating capacity. While the power cables are still operable and functioning, some of them are approaching a critical stage of degradation. Continued leaks and degradation could result in a complete outage or reduced pumping capacities.

The replacement work will be performed during two periods in fall 2019 and winter 2020. During a reduced flow period in fall 2019, the contractor will replace the power cables serving pump units one through five. In a scheduled winter 2020 CRA shutdown, the contractor will replace the power cables to pump units six through

nine and the cable serving station lighting and power. This methodology will allow the contractor to isolate replacement work to one half of the tunnel while the remaining power cables are energized.

In June 2014, Metropolitan's Board authorized design to replace the 6.9 kV power cables. Design has been completed, and staff recommends proceeding with construction at this time.

CRA 6.9 kV Power Cables Replacement – Construction

One construction contract will be utilized to make the recommended replacements at all five pumping plants. The use of one contractor will allow for synchronized flow reductions simultaneously at all five plants while the cable replacements are being undertaken. The collective scope of the construction contract for all five pumping plants includes: (1) replacement of approximately 48,200 feet of 6.9 kV power cables and their cable trays and supports, and associated termination devices; (2) rehabilitation of cable tunnel ventilation and cooling systems; (3) replacement of tunnel lighting systems; (4) repairs of tunnel cracks; and (5) abatement and disposal of hazardous materials including lead, PCB, and asbestos. Metropolitan force activities will include shutting down pumping systems and isolating the pumps to be worked on, providing safe access for the contractor by de-energizing and grounding existing electrical equipment, and testing and start-up of the new equipment. Metropolitan forces are recommended to perform this portion of the work because of their extensive training and experience working on the CRA pumping plants.

A total of \$23.9 million is required for the recommended activities. The following section and **Attachment 1** provide a breakdown of the planned costs. The total estimated cost of the CRA 6.9 kV Power Cables Replacement is approximately \$26 million.

Award of Construction Contract (Baker Electric, Inc.)

Specifications No. 1809 for the CRA 6.9 kV Power Cables Replacement was advertised for bids on November 9, 2018. As shown in **Attachment 2**, one bid was received and opened on December 21, 2018. The bid from Baker Electric, Inc. in the amount of \$16,452,832 complies with the requirements of the specifications. The engineer's estimate was \$18.4 million. Staff investigated the reasons why no other bids were submitted. The single bid was attributed to the high volume of construction currently underway in the region, and the unwillingness of other potential contractors to accept the risks associated with a very specialized project which requires that time-dependent, around-the-clock work be completed simultaneously at all five pumping plants. Staff also investigated the difference between the low bid and the engineer's estimate, and this is attributed to bidder's ability to negotiate lower cable procurement costs and to lower than expected overhead and profit rates for the low bid. Staff recommends proceeding with award of the contract due to the current poor condition of the existing cables to ensure reliable operation of the CRA. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 10 percent of the bid amount. Baker Electric, Inc. has committed to a 24 percent level of participation. The subcontractors for this contract are listed in **Attachment 3**.

This action awards a \$16,452,832 contract to Baker Electric, Inc. to replace the 6.9 kV power cables and ancillary equipment at all five CRA pumping plants. A total of \$23.9 million has been budgeted for this work; besides the amount of the contract, other allocated funds include the following: \$1,960,000 for Metropolitan force activities as described above; \$2,857,000 for construction management and inspection; \$939,000 for submittals review and preparation of record drawings; \$615,000 for environmental compliance monitoring, contract administration, and project management; and \$1,076,168 for remaining budget.

Construction inspection will be performed by Metropolitan staff. Engineering Services' goal for inspection of construction greater than \$3 million is 9 to 12 percent. For this project, the anticipated cost of inspection is approximately 15.5 percent of the total construction cost. Inspection costs for this project are projected at this level due to the around-the-clock concurrent inspection required during the two replacement work periods necessary to install the cables, and due to the multiple remote locations and long travel time between sites. The total cost of construction for this project is \$18.44 million, which includes the amount of the contract (\$16,452,832) and Metropolitan force activities (\$1,900,000).

Summary

This action awards a \$16,452,832 contract to Baker Electric, Inc. for replacement of the CRA 6.9 kV power cables. See **Attachment 1** for the Allocation of Budgeted Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 4** for the Location Map.

A total of \$23.9 million is required for this work. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team. Funds for this action are available within the appropriation for planned biennial CIP expenditures for fiscal years 2018/19 and 2019/20.

Project Milestone

July 2020 – Completion of replacement of the CRA 6.9 kV Power Cables

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 49800, dated June 10, 2014, the Board authorized design to replace the power cables and uninterruptible power supplies at each CRA pumping plant.

By Minute Item 51353, dated October 9, 2018, the Board appropriated a total of \$290 million for projects identified in the Capital Investment Plan for Fiscal Years 2018/19 and 2019/20.

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 overall activities involve the funding, design, minor alterations and replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 and Class 2 Categorical Exemptions (Sections 15301 and 15302 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Award \$16,452,832 contract to Baker Electric, Inc. to replace the 6.9 kV power cables at all five CRA pumping plants.

Fiscal Impact: \$23.9 million in capital funds

Business Analysis: This option will enhance the safety and reliability of the CRA pumping plants.

Option #2

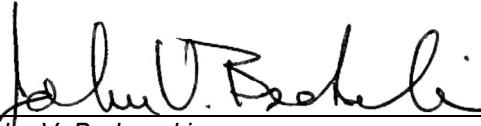
Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to reduce the risk of unplanned CRA outages or capacity reductions in the event that certain power cables fall below minimum operating standards.

Staff Recommendation

Option #1


John V. Bednarski
Manager/Chief Engineer
Engineering Services

1/14/2019 Date


Jeffrey Rightmeyer
General Manager

1/30/2019 Date

Attachment 1 – Allocation of Budgeted Funds**Attachment 2 – Abstract of Bids****Attachment 3 – Subcontractors for Low Bidder****Attachment 4 – Location Map**

Ref# es12664029

Allocation of Budgeted Funds for CRA 6.9kV Power Cables Replacement

	Current Board Action (Feb. 2019)
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	615,000
Submittals Review & Record	939,000
Construction Inspection & Support	2,857,000
Metropolitan Force Construction	1,960,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Equipment Use	-
Contracts	-
Baker Electric, Inc.	16,452,832
Remaining Budget	<u>1,076,168</u>
Total	<u>\$ 23,900,000</u>

The total amount expended to date replace the CRA 6.9kV power cables is approximately \$2.1 million. The total estimated cost to complete this project, including the amount appropriated to date and current funds requested with this action is \$26 million. No future funding requests are currently anticipated for this project.

The Metropolitan Water District of Southern California**Abstract of Bids Received on December 21, 2018 at 2:00 P.M.****Specifications No. 1809
Colorado River Aqueduct 6.9 kV Power Cables Replacement**

The work includes removal and replacement of 48,200 feet of 6.9 kV power cables; replacement of terminations and bus; rehabilitation of cable tunnel ventilation systems; replacement of tunnel lighting; repair of tunnel cracks; and hazardous materials handling and disposal.

Engineer's estimate: \$18,400,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE ¹
Baker Electric, Inc. Escondido, CA	\$16,452,832	\$4,009,787	24%	Yes

¹ Small Business Enterprise (SBE) participation level was established at 10 percent for this contract.

The Metropolitan Water District of Southern California**Subcontractors for Low Bidder****Specifications No. 1809
Colorado River Aqueduct 6.9 kV Power Cables Replacement**

Low bidder: Baker Electric, Inc.

Subcontractor and Location
Hampton Tedder Electric Company Montclair, CA
Environmental Construction Group, Inc. Signal Hill, CA
Acco Engineered Systems San Diego, CA
Aggreko, LLC Bakersfield, CA

Location Map

