



- Board of Directors
Engineering and Operations Committee

1/10/2012 Board Meeting

8-2

Subject

Appropriate \$3.76 million; and award \$2,982,500 contract to Cora Constructors for rehabilitation of the Copper Basin Reservoir outlet structure (Approp. 15373)

Description

This action authorizes rehabilitation of the outlet structure at Copper Basin Reservoir. This structure is a critical component of the Colorado River Aqueduct (CRA) conveyance system, as it regulates flow out of Copper Basin into the aqueduct.

Timing and Urgency

Copper Basin Reservoir is located just downstream of Gene pumping plant. The reservoir's outlet structure provides the only means to convey water from Copper Basin downstream into the CRA. The outlet structure contains motor-driven slide gates and control systems whose mechanical and electrical components have begun to fail. Spare parts are no longer available for many of these components. Rehabilitation of the outlet structure is needed to maintain CRA reliability.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria, and staff recommends moving forward with construction at this time. This project is categorized as an Infrastructure Refurbishment project and is budgeted within Metropolitan's CIP for fiscal year 2011/12.

Background

The CRA is a 242-mile-long conveyance system which transports water from the Colorado River to Lake Mathews. It consists of five pumping plants, 124 miles of tunnels, 63 miles of canals, and 55 miles of conduits, siphons, and reservoirs. The aqueduct was constructed in the late 1930s and was placed into service in 1941.

Copper Basin Reservoir was constructed in 1938 and is located in San Bernardino County, just downstream of Gene pumping plant. It has a storage capacity of 22,000 acre-feet. Water from Gene Wash Reservoir is lifted by Gene pumping plant into the Copper Basin Reservoir, and then exits through the outlet structure into the aqueduct.

The Copper Basin Reservoir outlet structure is located in an area surrounded by steep rocky slopes at the mouth of Whipple Mountain Tunnel. Three slide gates are used to control the amount of water that exits the reservoir and enters the downstream tunnel. Each slide gate is 7 feet wide by 10 feet high, and is positioned with an electric actuator. The slide gates are in continuous use and are relied upon to balance and regulate flows in the CRA.

An inspection conducted in 2007 identified that major components of the three gates are moderately corroded, but are able to be refurbished and reinstalled. However, appurtenant equipment on the gates (i.e., stems, guides, shafts, nut and bolts) must be replaced. The existing actuators, which are used to open and close the gates, are showing signs of corrosion and deterioration from 73 years of continuous use. Major components of the actuators, along with the gates' electrical components, control equipment, and data communication systems, need to be replaced as they have reached the end of their useful life. Spare parts are no longer available. In addition,

the rocky slopes adjacent to the outlet structure are susceptible to erosion. Improved site drainage and slope stabilization are needed to prevent rocks from falling onto the adjacent road and blocking access to the structure.

In April 2008, Metropolitan's Board authorized final design for rehabilitation of the Copper Basin Reservoir outlet structure. Final design has been completed, and construction is recommended to move forward at this time.

Planned improvements for the Copper Basin Reservoir outlet structure include: refurbishing the existing outlet gates and actuators; fabricating two removable drop gates that will be used during construction to sequentially isolate each slide gate from the reservoir and from Whipple Mountain Tunnel; replacing the existing electrical equipment with modern components that will be housed in a new electrical building; installing a data and telecommunication system to operate and monitor the facility remotely; constructing a 42-inch storm drain to improve site drainage and minimize soil erosion; and stabilizing the adjacent slope to mitigate further sloughing of loose rock. These improvements will enhance the reliability of water deliveries through the CRA.

Copper Basin Reservoir Outlet Structure Rehabilitation – Construction (\$3,760,000)

Specifications No. 1662 for the Copper Basin Reservoir Outlet Structure Rehabilitation was advertised for bids on October 3, 2011. As shown in [Attachment 2](#), five bids were received and opened on December 8, 2011. The apparent low bidder, Kaveh Engineering & Construction, requested to be relieved from its bid in accordance with the California Public Contract Code due to an inadvertent clerical error made during the bid process, which materially changed its bid. Upon review of the request, Metropolitan released Kaveh Engineering & Construction from its bid.

The second low bid from Cora Constructors, in the amount of \$2,982,500, complies with the requirements of the specifications. The three higher bids ranged from \$3,251,571 to \$3,432,875. The engineer's estimate was \$2,553,000. Staff investigated the difference between the second low bid and the engineer's estimate and attributes the difference to logistical challenges due to the remoteness of the job site. Further, it is likely that the contractor included a larger allowance for potential risks due to the unknown condition of the currently submerged outlet structure and drop gate guides. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 20 percent of the bid amount. Cora Constructors is a registered SBE firm and thus achieves 100 percent participation.

This action appropriates \$3.76 million and awards a \$2,982,500 construction contract to Cora Constructors. In addition to the amount of the contract, the appropriated funds include \$180,000 for support by Metropolitan forces, which includes rehabilitating the drop gate guides during a March 2012 CRA shutdown; providing electrical clearances; extending the existing electrical distribution line to the new electrical building; shutting down the outlet structure; and returning the aqueduct to service. Requested funds also include \$376,000 for construction inspection; \$75,000 for submittals review and technical support by Metropolitan staff; \$40,000 for preparation of record drawings; and \$106,500 for environmental monitoring and project management.

Construction inspection will be performed by Metropolitan staff. For this project, the anticipated cost of inspection is approximately 11.9 percent of the total construction cost. Engineering Services' goal for inspection of construction contracts less than \$3 million is 9 to 15 percent. For this project, the estimated total cost of construction is \$3,162,500.

This work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2011/12 capital budget. This project is included within capital Appropriation No. 15373, the CRA Conveyance Reliability Program, which was initiated in fiscal year 2001/02. Past work authorized under Appropriation No. 15373 includes the CRA Blow-off Valve Flange Outlet Replacement, Head Gates Operators and Circuit Breakers Rehabilitation, and the CRA Siphons, Transitions, Canals, and Tunnels Rehabilitation Project. The total appropriated amount for this program will increase from \$78,908,000 to \$82,668,000. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

This project is consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing CRA conveyance system in order to maintain reliable water deliveries in the future.

Project Milestone

May 2013 – Completion of construction of the Copper Basin Outlet Structure Rehabilitation

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 project involves the funding; final design; and minor alterations, reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures 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 does not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Class 1, Class 2, Class 3, and Class 4 Categorical Exemptions (Sections 15301, 15302, 15303, and 15304 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 2, Section 15302; Class 3, Section 15303; 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 \$3.76 million; and
- b. Award \$2,982,500 contract to Cora Constructors for the Copper Basin Reservoir Outlet Structure Rehabilitation.

Fiscal Impact: \$3.76 million of budgeted funds under Approp. 15373

Business Analysis: This project will enhance CRA reliability, protect Metropolitan's assets, and reduce the risk of costly emergency repairs.

Option #2

Do not award the construction contract and re-advertise in an attempt to receive more favorable bids.

Fiscal Impact: None

Business Analysis: This option may or may not result in more favorable bids and would increase the risk of an unplanned outage of the CRA.

Staff Recommendation

Option #1


Gordon Johnson
Manager/Chief Engineer, Engineering
Services

12/19/2011

Date


Jeffrey Kightlinger
General Manager

12/21/2011

Date

Attachment 1 – Financial Statement

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# es12613051

Financial Statement for CRA Conveyance Reliability Program

A breakdown of Board Action No. 16 for Appropriation No. 15373 for the Copper Basin Outlet Structure Rehabilitation project¹ is as follows:

	Previous Total Appropriated Amount (Nov. 2011)	Current Board Action No. 16 (Jan. 2012)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 3,293,300	\$ -	\$ 3,293,300
Final Design	4,258,687 ²	-	4,258,687
Owner Costs (Envir. monitoring, program mgmt)	4,909,100	106,500	5,015,600
Submittal Reviews, Record Dwgs.	116,000	115,000	231,000
Construction Inspection & Support	5,518,220	376,000	5,894,220
Metropolitan Force Construction	7,854,620	130,000	7,984,620
Materials & Supplies	1,660,300	50,000	1,710,300
Incidental Expenses	392,800	-	392,800
Professional Services	3,923,000	-	3,923,000
Right of Way	10,000	-	10,000
Equipment Use	211,450 ²	-	211,450
Contracts	43,649,913	2,982,500	46,632,413
Remaining Budget	3,110,610 ²	-	3,110,610
Total	\$ 78,908,000	\$ 3,760,000	\$ 82,668,000

Funding Request

Program Name:	CRA Conveyance Reliability Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15373	Board Action No.:	16
Requested Amount:	\$ 3,760,000	Capital Program No.:	15373
Total Appropriated Amount:	\$ 82,668,000	Capital Program Page No.:	282
Total Program Estimate:	\$ 120,459,000	Program Goal:	I-Infrastructure Reliability

¹The total amount expended to date on the Copper Basin Outlet Rehabilitation project is approximately \$1,877,000.

²Includes previous reallocation of \$585,000 from remaining budget to final design and equipment use for the Copper Basin Outlet Structure and Copper Basin and Gene Sluiceways Rehabilitation projects.

The Metropolitan Water District of Southern California
Abstract of Bids Received on December 8, 2011 at 2:00 P.M.

Specifications No. 1662

Copper Basin Reservoir Outlet Structure Rehabilitation

The Copper Basin Reservoir Outlet Structure Rehabilitation project consists of the rehabilitation of three slide gates, fabrication of two removable drop gates, construction of a pre-fabricated building to house new electrical and data communication systems, and site improvements including a 42-inch diameter storm drain and rock slope stabilization.

Engineer's Estimate: \$2,553,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE²
Kaveh Engineering & Construction, Anaheim, CA	\$ 1,294,900 ¹	N/A	N/A	N/A
Cora Constructors, Palm Desert, CA	\$ 2,982,500	2,982,500	100%	Yes
J.F. Shea Construction, Inc., Walnut, CA	\$ 3,251,571	N/A	N/A	N/A
Abhe & Svoboda, Inc., San Pedro, CA	\$ 3,327,033	N/A	N/A	N/A
Steve P. Rados, Inc., Santa Ana, CA	\$ 3,432,875	N/A	N/A	N/A

¹ Kaveh Engineering & Construction requested to be released from its bid in accordance with the California Public Contract Code due to an inadvertent clerical error made during the bid process, which materially changed its bid. Upon review of the request and documentation submitted, Metropolitan released Kaveh Engineering & Construction from its bid.

² SBE (Small Business Enterprise) participation was established at 20% for this contract

Location Map

