



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

5/11/2021 Board Meeting

7-5

Subject

Award a \$2,022,000 contract to R2BUILD to upgrade the flow monitoring station at Mile 12 of the Colorado River Aqueduct; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The monitoring station at mile marker 12 (Mile 12) is located downstream of Copper Basin Reservoir, and measures flow rates and chlorine levels within the Colorado River Aqueduct (CRA). These measurements are needed to maximize CRA flows, prevent pumping beyond the aqueduct's capacity, and control chemical addition to the aqueduct. The existing monitoring equipment is severely corroded due to age and exposure to chlorine vapors and needs to be replaced to maintain reliable flows through the CRA system. This action awards a construction contract to replace the CRA Mile 12 flow meter and upgrade the appurtenant facilities at the monitoring station.

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, 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.

One of the CRA's critical points for monitoring flow rates and chlorine levels is located at Mile 12, approximately five miles downstream of Copper Basin Reservoir. This remote monitoring station, powered by a solar generating system, continuously monitors the flow data and chlorine residual concentrations in the aqueduct. The information collected at the station is used to adjust flow rates at each pumping plant and at the reservoir outlet gates, and to adjust chlorine injection rates at Copper Basin Reservoir. While the equipment has performed well over nearly 30 years of operation, it has begun to fail, which has led to unreliable readings and interruptions in data transmission.

The Mile 12 monitoring station is presently located in a below-ground structure, located 50 feet adjacent to the aqueduct. The equipment inside this structure includes a set of flow meter consoles, chlorine analyzers, communication equipment, and batteries, and the flow meter sensors are located 100 feet downstream of a transition structure inside a pipeline portion of the aqueduct. The site's solar facilities are located directly outside of the monitoring station structure. At the present time, staff makes frequent trips to this isolated site to verify the flow rates and the chlorine residual measurements. Prior to entering the structure, chlorine concentrations must be tested to ensure that the structure is safe to enter. The corrosive chlorine vapors have degraded the equipment within the structure, and this degradation has made the instrumentation in the structure prone to failure and transmission of erroneous data. Consequently, staff recommends that new monitoring equipment be installed at this critical monitoring site.

In order to extend the life of the new equipment, enhance worker safety, and provide appropriate security at this remote location, equipment presently located in a below-ground structure will be relocated to an above-ground structure that is isolated from the chlorine vapors. This new above-ground structure will be equipped with an

air-conditioning system to maintain a climate-controlled environment for temperature-sensitive monitoring equipment. The flow meter sensors and cabling located inside the aqueduct will also be replaced in order to rehabilitate the complete flow monitoring system. In order to provide continuous transmission of the flow data needed for control of CRA operations, a propane generator system will be installed to provide backup power in the event the primary solar power source fails. In addition, security cameras and motion sensor lighting will be installed to enhance security measures for the isolated site. This heightened level of security and surveillance requires the installation of new Information Technology equipment, hardware, and associated electrical infrastructure. Finally, to ensure that there is adequate electric power for the remote site, the existing solar power generation capabilities at the site will be upgraded as part of this project.

Metropolitan's Board has previously authorized final design for the upgrades of the monitoring station at Mile 12. In April 2017, Metropolitan's Board also authorized procurement and installation of a precast concrete building to house the monitoring station at Mile 12. The building has recently been installed. Staff recommends award of a construction contract to procure and install new monitoring devices and ancillary equipment and make other upgrades as described in this letter at the CRA Mile 12 monitoring station at this time. This contract and associated start-up activities will complete the project.

In accordance with the April 2020 action on the biennial budget for Fiscal Years 2020/21 and 2021/22, the General Manager will authorize staff to proceed with the upgrades of the flow monitoring station at CRA Mile 12, pending board award of the construction contract described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for the work to be performed pursuant to this action during the current biennium are available within the CIP Appropriation for Fiscal Years 2020/21 and 2021/22 (Appropriation No. 15517). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the CRA Reliability Program.

CRA Mile 12 Flow Monitoring Station Upgrades – Construction

The scope of the construction contract for the Mile 12 monitoring station includes: (1) replacing the CRA flowmeters, chlorine analyzers, transducers, and associated cabling; (2) replacing a sump pump and associated mechanical piping; (3) upgrading the solar power system; (4) installing a propane generator system; (5) installing a 40-foot high pole along with associated electrical infrastructure and cabling needed to transmit telecommunication data; (6) installing security cameras and motion sensor lighting; and (7) abatement and disposal of hazardous materials including asbestos and lead. Metropolitan force activities will include shutting down the aqueduct pumping system, dewatering and re-watering the aqueduct, and connecting the new instruments to the existing data collection system. In addition, Metropolitan staff will procure and install a 6-foot diameter telecommunication antenna dish with hardware and software and integrate these systems with Metropolitan's Supervisory Control and Data Acquisition system.

A total of \$3.9 million has been budgeted for this work; besides the amount of the contract, other allocated funds include: \$440,000 for construction management and inspection; \$617,000 for Metropolitan force activities as described above; \$342,000 for Metropolitan staff to review submittals, respond to requests for information, provide technical support, and prepare record drawings; \$271,000 for contract administration, environmental monitoring, and project management; and \$208,000 for remaining budget.

Award of Construction Contract (R2BUILD)

Specifications No. 1760A for the upgrades of the Mile 12 flow monitoring station was advertised for bids on February 11, 2021. As shown in **Attachment 2**, three bids were received and opened on April 6, 2021. The low bid from R2BUILD in the amount of \$2,022,000 complies with the requirements of the specifications. The other bids ranged from approximately \$2.4 million to \$2.8 million, while the engineer's estimate was \$2.3 million. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the bid amount. R2BUILD is an SBE firm and thus achieves 100 percent participation. The subcontractors for this contract are listed in **Attachment 3**. This action awards a \$2,022,000 contract to R2BUILD for the upgrades of the flow monitoring station at Mile 12 on the CRA.

The total cost of construction for this project is \$2,964,000, which includes the amount of the contract (\$2,022,000), previously procured precast concrete building (\$325,000), and Metropolitan force activities (\$617,000). Engineering Services' goal for inspection of projects with construction less than \$3 million is

9 to 15 percent. For this project, the anticipated cost of inspection is approximately 14.8 percent of the total construction cost.

Alternatives Considered

Early in the design process, staff considered keeping the monitoring equipment in the existing below-ground structure. A below-ground structure in a remote desert environment has advantages. It is less susceptible to extreme heat in the desert and blends into the landscape, minimizing opportunities for vandalism.

However, in 2007 Metropolitan began the introduction of chlorine at Copper Basin Reservoir to control the quagga mussel population. Since the below-ground structure is located just downstream of the reservoir and adjacent to the aqueduct, residual chlorine vapors could be present in the structure and lead to accelerated corrosion of metal components. Also, prior to entering the structure, the air in the structure must be tested to ensure that the environment is safe to enter. Staff also considered installing the new equipment in another below-ground structure farther away from the aqueduct; however, this option was more expensive to construct and would continue to require staff to test the air in the vault prior to performing maintenance as required by confined space requirements.

Staff also investigated the possibility of installing a power line to power the Mile 12 structure to avoid the need for solar panels on this project. The structure is in a remote location and would have required a five-mile-long power line to connect to the existing grid. Staff concluded that enlarging the solar panel array would be more cost-effective, less obtrusive, and more sustainable than construction of a long power line.

Therefore, staff recommends installation of new flow sensors in the CRA, relocation of the monitoring station to an above-ground building, and replacement of the deteriorating monitoring equipment with new equipment. To address weather and vandalism concerns, staff has added solar-powered air conditioning, security cameras, and motion sensor lighting to the above-ground structure. The recommended alternative will extend the life of the new equipment, enhance worker safety, and provide appropriate security at this remote location.

Summary

This action awards a \$2,022,000 contract to R2BUILD for the upgrades of the flow monitoring station at Mile 12 on the CRA. See **Attachment 1** for the Allocation of 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.

Project Milestone

June 2022 – Completion of flow monitoring station upgrades

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 48078, dated November 10, 2009, the Board authorized the final design for the upgrades of the Mile 12 flow monitoring station.

By Minute Item 50783, dated April 11, 2017, the Board authorized the procurement of the precast concrete building for Mile 12 flow monitoring station.

By Minute Item 51963, dated April 14, 2020, the Board appropriated a total of \$500 million for projects identified in the Capital Investment Plan for Fiscal Years 2020/21 and 2021/22.

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. In particular, the proposed action consists of modifying existing public facilities with negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action includes minor public or private alterations in the condition of land, water, and/or vegetation that do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. Accordingly, the proposed action qualifies under Class 1 and Class 4 Categorical Exemptions (Sections 15301 and 15304 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required.

Board Options

Option #1

Award \$2,022,000 contract to R2BUILD to upgrade the flow monitoring equipment at Mile 12 along the Colorado River Aqueduct.

Fiscal Impact: Expenditure of \$3.9 million in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: This option will improve operational efficiency, enhance CRA Reliability, and workplace safety.

Option #2

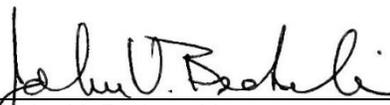
Do not proceed with the project at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to improve the reliability and ensure workplace safety of Mile 12 chlorine monitoring station along the CRA.

Staff Recommendation

Option #1



 John V. Bednarski
 Manager/Chief Engineer
 Engineering Services

4/19/2021

Date



 Jeffrey Wightlinger
 General Manager

4/27/2021

Date

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# es12671796

Allocation of Funds for CRA Mile 12 Flow Monitoring Station Upgrades

	Current Board Action (May 2021)
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	271,000
Submittals Review & Record Drwgs.	342,000
Construction Inspection & Support	440,000
Metropolitan Force Construction	292,000
Materials & Supplies	325,000
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
R2BUILD	2,022,000
Remaining Budget	208,000
Total	\$ 3,900,000

The total amount expended to date for the upgrades of the flow monitoring station at CRA Mile 12 is approximately \$2.53 million. The total estimated cost to complete this project, including the amount appropriated to date and funds allocated for the work described in this action, is \$6.43 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on April 6, 2021 at 2:00 P.M.

Specifications No. 1760A

**Colorado River Aqueduct Mile 12 Flow Monitoring
Station Upgrades Project**

The project consists of furnishing and installing flow monitoring equipment, transducers, mechanical pump and piping, propane generator system, security cameras and motion sensor lighting, and upgrading the solar power system.

Engineer's Estimate: \$2,300,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE*
R2Build Laguna Hills, CA	\$ 2,022,000	\$ 2,022,000	100%	Yes
Gracon LLC Layfayette, CO	\$ 2,412,417	N/A	N/A	N/A
R.I.C. Construction Co., Inc. Hesperia, CA	\$ 2,783,298	N/A	N/A	N/A

*SBE (Small Business Enterprise) participation was established at 25% for this contract

The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

**Specifications No. 1760A
Colorado River Aqueduct Mile 12 Flow Monitoring
Station Upgrades Project**

Low bidder: R2BUILD

Subcontractor and Location
Consult Construction, Culver City, CA
Hydro Scientific West, Escondido, CA
Sensitive Environmental, Inc., South El Monte, CA

Location Map

