



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

11/14/2023 Board Meeting

7-3

Subject

Authorize an increase of \$3,100,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

Metropolitan's construction contracts are typically completed with final change order amounts falling well within the General Manager's Administrative Code authority, which is the greater of \$250,000 or five percent of the initial contract amount. This action authorizes increasing the General Manager's change order authority for the Colorado River Aqueduct (CRA) Overhead Crane replacement. The increase in change authority will address the abatement of lead-containing material encountered in the construction area, the presence of which was not identified during the original design development for this contract. Based on current and anticipated field conditions, the extent of required extra work under the subject contract is projected to exceed the General Manager's existing change order authority of \$1,170,950. Staff recommends that the General Manager's change order authority for this construction contract be increased by \$3,100,000 at this time so the contractor can complete the remaining work without delay and at the lowest overall cost.

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.

Each of Metropolitan's five pumping plants has one overhead bridge crane on the pump room's main floor. The existing cranes were installed during the original CRA construction. Each crane spans the width of the entire floor, running along tracks that are anchored to the building at a height of 45 feet above the ground floor. These cranes have performed well over the last 80 years; however, they show signs of deterioration and require frequent repair, and staff must custom fabricate many of the replacement parts since original or substitute off-the-shelf parts are no longer available.

In September 2020, Metropolitan's Board awarded a \$13,419,000 contract to J.F. Shea Construction Inc. to perform the overhead crane replacement work at all five CRA pumping plants. The contractor has currently completed the fabrication of four cranes and completed the installation of the cranes at Iron Mountain and Gene pumping plants. Construction is approximately 60 percent complete and scheduled to be finished by summer 2024.

Metropolitan's Administrative Code authorizes the General Manager to execute change orders on construction contracts in an aggregate amount not to exceed five percent of the initial amount of the contract or \$250,000, whichever is greater. Change orders to construction contracts can be issued for a variety of reasons, including (1) to address design errors and/or omissions after construction began; (2) to address field conditions that differ from those shown on the contract drawings and specifications; (3) owner-initiated changes because they increase the overall project quality and efficiency; and (4) changes needed to benefit other related construction projects.

Metropolitan staff carefully considers the need to issue contract change orders and negotiates the cost and schedule impacts of all change orders before they are formally authorized.

Metropolitan's construction contracts are typically completed with final change order amounts falling well within the General Manager's Administrative Code authority. Since the beginning of 2018, Metropolitan has completed 115 public works contracts with a total awarded amount of approximately \$542 million and total earnings after net extra work of \$557 million. The average change order authority utilized over this period is 2.8 percent. All but five of the 115 contracts have stayed within their original awarded change order authority amount.

If changes occur on a construction contract that exceeds the General Manager's authority, additional authorization from the Board is required. For this contract, the original change order authority based on the construction contract amount was \$670,950. The change order authority was increased in March 2023 by \$500,000 to provide modifications to the original design of the cranes to optimize the operational functionality of the crane systems. These enhancements will improve staff's ability to efficiently conduct maintenance activities and minimize downtime during equipment installation. At this time, the subject contract has experienced differing site conditions that were not expected related to the discovery of lead-containing material in the construction area that was not previously identified during the design phase of this project. Staff anticipates that resolving these issues will exceed the General Manager's Administrative Code authority.

CRA Overhead Crane Replacement – Increase in Change Order Authority (Contract No. 1946)

In the early and mid-1900s, lead-based coatings were in high demand because they were affordable, durable, and washable. Lead-based coatings were later found to be of public health concern, primarily in housing and schools, due to childhood lead poisoning. In 1993, Cal/OSHA established the Lead in Construction Standard to address lead hazards in the workplace. Since the inception of this standard, Metropolitan has been eliminating the purchase of products and coating materials that contain lead.

Moreover, Metropolitan established a robust Lead Management Program ([HSE 127 Lead Program](#)) that has multiple layers of prevention controls, including assessing work exposures; establishing safe work practices; providing routine employee lead training; pre-authorizing lead work; overseeing remediation; and providing employee medical surveillance. As specified in the Lead Management Program, Metropolitan routinely conducts exposure assessments and program reviews to validate negative lead exposures, confirm that prevention controls continue to be effective, and update the program to improve its effectiveness as necessary.

As most Metropolitan facilities were built in the early and mid-1900s, staff has developed a lead remediation strategy when a project requires modifications to lead-containing materials. Under Metropolitan's lead remediation strategy, staff tests materials that may be disturbed during the project's construction and then develops contract documents to safely remove and remediate the equipment.

For the CRA Overhead Crane Replacement, the specifications directed the contractor to assume that all painted surfaces, including the crane runway support beams, contain lead-based paint above the regulatory limit and to abate consistent with applicable regulations. During the abatement process, the contractor inadvertently breached the containment system at Iron Mountain Pumping Plant, releasing blast media into the pumphouse. The contractor immediately started a cleanup process, including additional lead testing throughout the pumphouse, and enhanced the containment system. During this testing, the contractor discovered accumulated and settled sticky dust containing lead (settled dust) in the uppermost parts of the building, such as roof trusses, windowsills, and on top of the light fixtures.

The three pumping plants (Eagle, Hinds, and Intake pumping plants) with an upcoming crane installation were then tested for the presence of the settled dust before the start of construction at these plants. This testing has determined that settled dust exists in rarely accessed areas in the uppermost parts of these pump houses. This has led to the conclusion that the settled dust did not result from the crane replacement project. It is important to note that air monitoring samples collected at the Eagle Plant in early October 2023 with all the plant fans in operation were below the laboratory detection limit for lead.

Metropolitan plans a two-stage strategy for managing lead in CRA facilities. Under Stage 1, this work will focus on abating the settled dust in the vicinity of the crane replacement project work areas. With the increased change order authority, Metropolitan will direct the contractor to remediate each remaining pump house so that construction can continue. This includes cleaning all surfaces that may be disturbed or are near the construction

area, including the entire length of the walls, horizontal roof trusses, windowsills, and the top of light fixtures at all five pumping plants. This plan was reached in concurrence with the contractor in an overabundance of caution and despite negative exposure air monitoring results.

Under Stage 2, staff will contract with an industrial hygiene firm for a lead assessment of the pump houses and to develop a programmatic approach for CRA facilities. This more comprehensive assessment will be conducted in light of the extensive nature of the planned work to rehabilitate the pump house main motors and electrical facilities under the current Capital Investment Plan. Lessons learned from the assessment will be incorporated into Metropolitan's Lead Management Program.

The changes to on-site conditions described above, and other less significant changes to the contract, have utilized most of the existing change order authority. Several months of work are required to perform the lead-containing material cleanup before the construction, start-up, and commissioning at the remaining three CRA pumping plants. Staff recommends that this cleanup work be conducted as additional changes to the original construction contract to minimize delays to the contractor's work. Therefore, it is recommended that the change order authority be increased to address the recently discovered change in site conditions described above, as well as any potential future issues that may arise during the final stages of this contract.

As authorized in March 2003, the General Manager has the authority to execute change orders for this contract up to a maximum of \$1,170,950. To date, approximately \$970,000 in change orders have been executed. To fully resolve these issues and complete the construction, testing, and commissioning of the overhead bridge cranes at the remaining three CRA pumping plants, staff recommends that the change order authority be increased by \$3,100,000 for a new maximum amount of \$4,270,950. This increase will enable all remaining work to be performed expeditiously without delaying the contract completion.

This action authorizes an increase in the General Manager's authority to execute change orders from \$1,170,950 to an aggregate amount not to exceed \$4,270,950 for the overhead bridge crane replacement at all five CRA pumping plants. In accordance with Governmental Accounting Standards Board provisions, the lead abatement work will be conducted with Metropolitan's operations and maintenance funds for fiscal year 2023/24 instead of a capital appropriation.

Alternative Considered

Staff considered soliciting a separate hazardous materials abatement contractor to abate and clean up the lead-containing material at the remaining three CRA pump houses. With this approach, Metropolitan would direct the construction contractor to pause work until the pumping plants are fully abated. Due to the estimated cost of the cleanup, a request for competitive bids will need to be developed, and a separate board action to award the contract would be required. This would delay the crane installation contract, as well as the remediation, by several months. Using the current contractor to complete the lead abatement will allow the work to be completed in a timely and cost-effective manner while proactively providing a safe working environment for all personnel during construction and future plant operations.

Summary

This action authorizes an increase of \$3,100,000 in the General Manager's authority to execute change orders for Contract No. 1946 with J.F. Shea Construction Inc. for unforeseen conditions during construction. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

Project Milestone

June 2024 – Construction completion

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 52113, dated September 15, 2020, the Board awarded a \$13,419,000 construction contract to J.F. Shea Construction Inc. to replace the overhead bridge cranes at all five CRA pumping plants.

By Minute Item 53178, dated March 14, 2023, the Board authorized an increase of \$500,000 in the General Manager's authority to execute change orders for Contract No. 1946 with J.F. Shea Construction Inc.

By Minute Item 21997, dated April 11, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because it involves the operation, repair, maintenance, or minor alteration of existing public structures, facilities, mechanical equipment, involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. (State CEQA Guidelines Section 15301.)

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an increase of \$3,100,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants.

Fiscal Impact: Expenditure of up to \$3,100,000 in O&M funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: This option will allow the timely completion of remaining work for the replacement of the overhead bridge cranes at all five CRA pumping plants.

Option #2

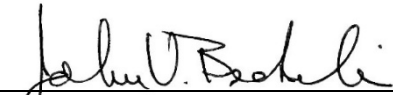
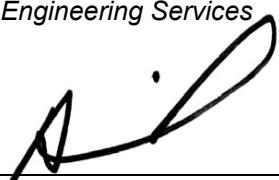
Do not authorize an increase in change order authority.

Fiscal Impact: Additional costs would likely be incurred in the future as an additional contract(s) will need to be authorized to perform the lead cleanup or complete the work that was planned in the original contract.

Business Analysis: This option is unlikely to result in lower costs for the extra work performed and would delay the project's completion.

Staff Recommendation

Option #1

 John V. Bednarski Manager/Chief Engineer Engineering Services	10/26/2023 Date
 Adel Hagekhalil General Manager	10/30/2023 Date

Attachment 1 – Allocation of Funds

Attachment 2 – Location Map

Allocation of Funds for CRA Overhead Cranes Replacement Project

	Current Board Action	
	(Nov. 2023)	
Labor		
Studies & Investigations	\$	-
Final Design		-
Owner Costs (Program mgmt., envir. monitoring)		-
Submittals Review & Record Drwgs.		-
Construction Inspection & Support		-
Metropolitan Force Construction		-
Materials & Supplies		-
Incidental Expenses		-
Professional/Technical Services		-
Right-of-Way		-
Equipment Use		-
Contracts		
J. F. Shea Construction Inc		3,100,000
Remaining Budget		-
Total	\$	3,100,000

The CRA Overhead Cranes lead abatement will be completed with O&M funding.

Location Map

