



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

1/9/2024 Board Meeting

7-2

## Subject

Authorize an increase of \$4,800,000 in change order authority for the contract to upgrade the domestic water treatment systems 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

This action authorizes increasing the General Manager's change order authority for the Colorado River Aqueduct (CRA) Domestic Water Treatment System Upgrades. The increase in change authority will address the procurement, programming, and installation of nine programmable logic controllers (PLCs) to facilitate communication between the domestic water treatment systems and Metropolitan's Supervisory Control and Data Acquisition (SCADA) system. The original contract specified that Metropolitan would furnish and deliver to the contractor for installation nine remote terminal units (RTUs). The specialty vendor with whom Metropolitan has a longstanding partnership to supply these RTUs decided to take significant exceptions to Metropolitan's standard contract terms and conditions, which had the impact of halting the RTU procurement process. After numerous discussions, it became evident that a mutually agreeable resolution would not be reached. To resolve the issue, staff recommends that the construction contractor provide PLCs to support the communications requirements described above. The provision of the PLCs by the contractor, instead of Metropolitan-furnished RTUs, will require the contractor to conduct significantly more work than originally planned. Based on this scope increase to the existing contract, the extent of required extra work under the subject contract is projected to exceed the General Manager's current change order authority of \$1,641,200.

Staff recommends that the General Manager's change order authority for this construction contract be increased by \$4,800,000 at this time so the contractor can complete the remaining work without delay and at the lowest overall cost. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

## Proposed Action/Recommendation and Options

### Staff Recommendation: Option #1

#### Option #1

Authorize an increase of \$4,800,000 in change order authority for the contract to upgrade the domestic water treatment systems at the five Colorado River Aqueduct pumping plants.

**Fiscal Impact:** Expenditure of up to \$4,800,000 in capital funds. Approximately \$1.3 million will be incurred in the current biennium and has been previously authorized. The remaining funds from this action will be accounted for in the next biennial budget.

**Business Analysis:** This option will allow the timely completion of all remaining work for the upgrades to the domestic water treatment systems at the five Colorado River Aqueduct 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 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.

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## Alternatives Considered

Staff made multiple attempts to negotiate terms and conditions with the current RTU supplier. However, the final terms were deemed unfavorable and posed significant risks to Metropolitan with procurement delays, equipment quality, warranty concerns, and long-term equipment support. These risks could result in significant delays in the start-up and commissioning of the domestic water treatment systems and compromise the long-term reliability of the water supply for all the pumping plants. Additionally, since the industry is slowly transitioning to PLCs, there is limited availability of maintenance support and replacement parts for RTUs, making long-term maintenance challenging for staff. Using the current contractor to complete the PLCs procurement and installation minimizes construction delays, provides reliable water treatment systems, and ensures the most cost-effective approach.

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## Applicable 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

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## Related Board Actions/Future Actions

By Minute Item 52628, dated December 14, 2021, the Board awarded a \$32,824,000 contract to J.F. Shea Construction Inc. to upgrade the domestic water treatment systems at the five CRA pumping plants.

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.

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## California Environmental Quality Act (CEQA)

### CEQA determination for Option #1:

On December 14, 2021, the Board approved the CRA Domestic Water Treatment System Upgrades Project. The General Manager determined the project to be exempt from CEQA pursuant to Sections 15301, 15302, and 15304 of the State CEQA Guidelines. The current board action does not result in any substantial change to the project. Accordingly, no further CEQA determinations or documentation are necessary.

### CEQA determination for Option #2:

None required

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## Details and Background

### 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.

The CRA pumping plants and villages are located in remote areas of Riverside and San Bernardino Counties, where municipal water supplies are unavailable, necessitating reliance on local domestic water systems for potable water. The existing water treatment systems are early-generation membrane filtration units installed in 1993. While fully functional today, system components are deteriorating, requiring frequent repairs and adjustments. The domestic water treatment systems are critical infrastructure components supporting the CRA

pumping plants. The domestic water treatment systems need to be replaced to maintain compliance with drinking water regulations, reduce the frequency of repairs, and maintain reliable operation.

In December 2021, Metropolitan's Board awarded a \$32,824,000 contract to J.F. Shea Construction Inc. to upgrade the domestic water treatment systems at all five CRA pumping plants, including replacing the water treatment units. Construction is approximately 20 percent complete and scheduled to be completed by late 2025.

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 are issued for a variety of reasons, including (1) owner-initiated changes because they increase the overall project quality and efficiency; (2) to address design errors and/or omissions discovered after construction began; (3) to address field conditions that differ from those shown on the contract drawings and specifications; and (4) changes needed to benefit other related construction projects. Metropolitan staff 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 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 \$571 million and total earnings after net extra work of \$585 million. The average change order authority utilized over this period is 2.6 percent. All but five of the 115 contracts have stayed within their initially 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 is \$1,641,200. At this time, the subject contract has experienced unforeseen circumstances when the contract was originally advertised for construction bids. Staff anticipates that the timely resolution of these issues will exceed the General Manager's Administrative Code authority.

#### **CRA Domestic Water Treatment System Upgrades – Increase in Change Order Authority (Contract No. 1949)**

The original scope of Contract No. 1949 required the contractor to install nine Metropolitan-furnished RTUs to facilitate communication between the new domestic water treatment systems and Metropolitan's SCADA system. This approach has proven to be successful on past construction contracts and requires Metropolitan to procure the RTU equipment directly from a specialty vendor. Metropolitan's RTUs interface with proprietary software developed in conjunction with this specialty vendor, which has been supplying equipment to Metropolitan for the past several years. This proprietary software contains enhanced security features to prevent Metropolitan's SCADA system breaches. The RTUs are then programmed by in-house staff based on the individual project's specific requirements. The programmed RTUs are supplied to the general contractor for installation. Besides providing advanced security measures, this strategy offers competitive pricing, reduces supply chain risks, and ensures that the RTUs meet all the latest codes and security standards.

During the procurement of the RTUs for this project, the specialty vendor with whom Metropolitan has a longstanding partnership decided to make significant exceptions to the liability limits outlined in Metropolitan's standard terms and conditions contract, thereby halting the procurement process. After numerous negotiation attempts, it became evident that a mutually agreeable resolution would not be reached. To minimize delays, and in consultation with Metropolitan's Legal staff, it was decided to replace the RTUs with PLCs, which are an alternative product with similar functionalities to the RTUs. PLCs were selected since they can be readily programmed for integration with Metropolitan's proprietary software and the SCADA system and procured relatively quickly in today's market conditions. Additionally, the industry is slowly phasing out RTUs and transitioning to PLCs. Metropolitan is also transitioning to keep up with the evolving technology and the latest industry standards, and this evolution is evidenced in the ongoing SCADA replacement program that is currently underway at the Mills Plant.

The transition from RTUs to PLCs on this project has resulted in a revised and increased scope of work for the existing contractor. The changes necessitated significant revisions to existing design drawings, and the

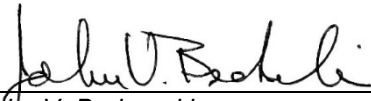
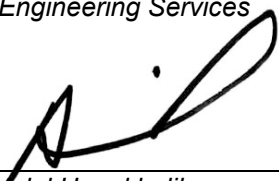
development of new specifications were required to direct the contractor to purchase, program, test, and commission the PLCs. The contractor was also required to modify electrical cabinets, provide additional conduits and raceways, and reconfigure the layout of new electrical equipment within the pumphouse to accommodate the new PLCs. As part of the overall costs, Metropolitan has agreed to pay the existing contractor additional fees to expedite vendor submittals, procurement, and shipping to minimize any delays to the project. Metropolitan has taken a similar approach on a few other construction contracts, experiencing a similar situation with a high degree of success.

The changes described above and other more minor changes to the contract resulting from unforeseen field conditions have utilized most of the existing change order authority. Several months of work are required for PLC procurement, fabrication, installation, start-up, and commissioning. Consequently, it is expected that there will be additional unanticipated changes to the construction contract. This action increases the original change order authority to accommodate both the known issues listed above as well as potential unforeseen future issues.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract up to a maximum of \$1,641,200. To date, approximately \$700,105 in change orders have been executed. To fully resolve these issues and complete the re-design for replacement components, fabrication, installation, start-up, and commissioning of the SCADA components at all five CRA pumping plants, staff recommends that the change order authority be increased by \$4,800,000 for a new maximum amount of \$6,641,200. 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 \$1,641,200 to an aggregate amount not to exceed \$6,641,200 for the CRA domestic water upgrades project.

### ***Project Milestone***

December 2025 – Construction completion

 John V. Bednarski Manager/Chief Engineer Engineering Services	12/14/2023 Date
 Adel Hagekhalil General Manager	12/19/2023 Date

**Attachment 1 – Allocation of Funds**

**Attachment 2 – Location Map**

Ref# es12692467

### Allocation of Funds for CRA Domestic Water Treatment System Upgrades

	<b>Current Board Action (Jan. 2024)</b>	
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.		4,800,000
Remaining Budget		-
<b>Total</b>	<b>\$</b>	<b>4,800,000</b>

The total amount expended to date to replace the CRA Domestic Water Treatment Systems is approximately \$20.5 million. The total estimated cost to complete the CRA Domestic Water Treatment Systems, including the amount appropriated to date and funds allocated for the work described in this action, is \$52 million.

## Location Map

