



Engineering, Operations, & Technology Committee

Change Order Authority Increase for CRA Domestic Water Treatment Systems Upgrades Project

Item 7-2

January 8, 2024

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Change Order Authority Increase for CRA Domestic Water Treatment Systems Upgrades Project

Subject

Authorize an increase in change order authority to upgrade the domestic water treatment systems at five Colorado River Aqueduct pumping plants

Purpose

Procure, program, and install 9 Programmable Logic Controllers (PLCs)

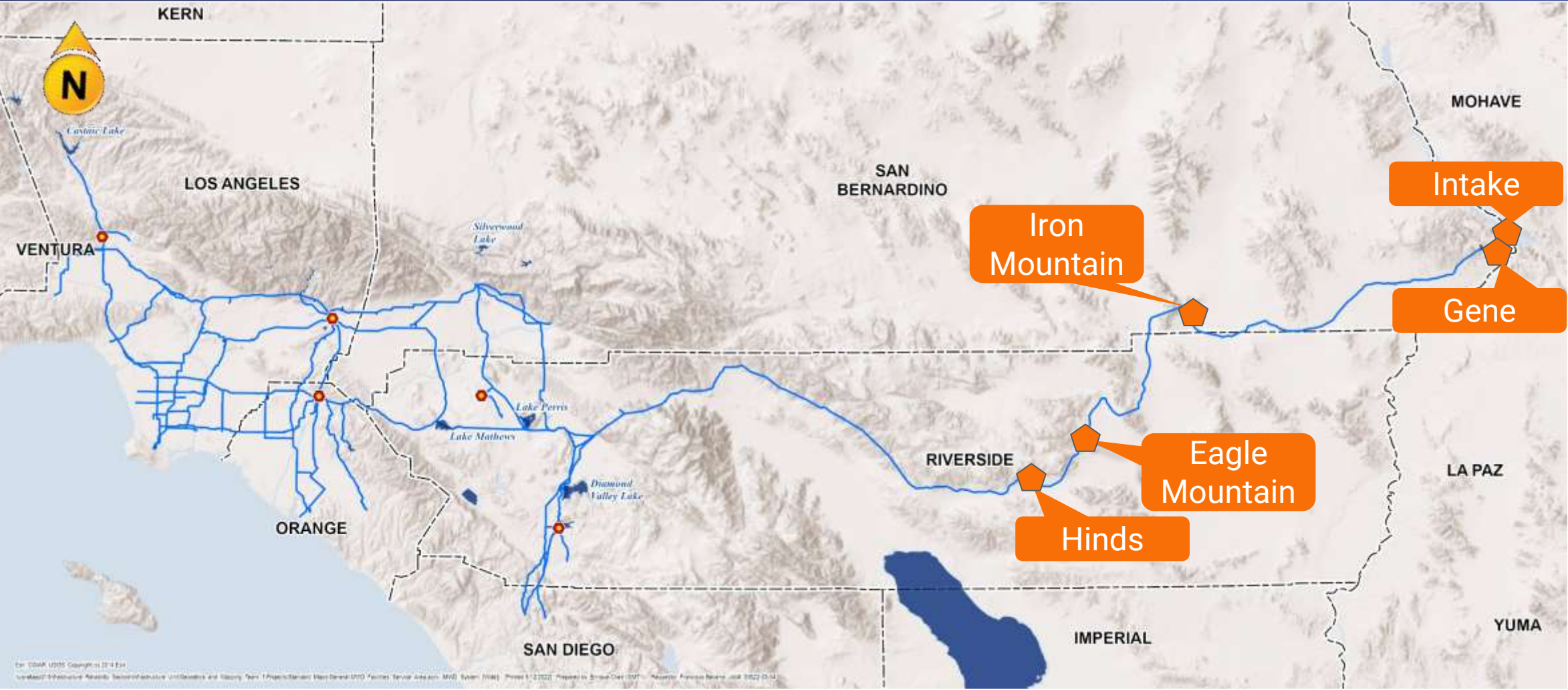
Recommendation and Fiscal Impact

Authorizes a \$4.8 million increase in change order authority for the contract to upgrade the domestic water treatment systems.

Fiscal impact \$4.8 million

Budgeted

Location Map



Change Order Authority Increase for CRA Domestic Water Treatment Systems Upgrades

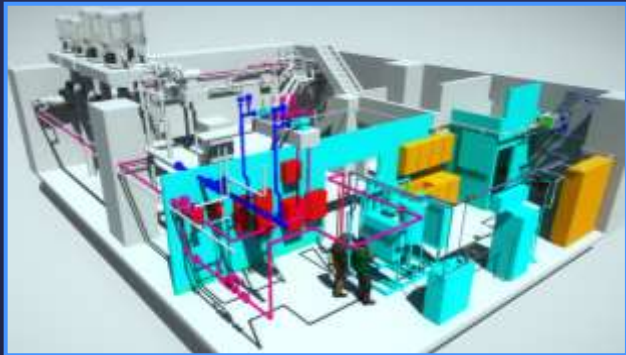
Background

- Original treatment systems installed in 1993
- Provides drinking water for CRA pumping plants & villages
- Maintains compliance with drinking water regulations
- First microfiltration systems approved by DDW for these purposes
- Equipment is deteriorating & requires frequent repairs
- Replacement parts difficult to obtain



Existing
Microfiltration Units

Change Order Authority Increase for CRA Domestic Water Treatment Systems Upgrades



New Membrane Equipment & Piping

Contractor Scope

- Dec. 2021 – Contract awarded to J.F. Shea Construction Inc.
- Contract Amount - \$32,824,000
- Contract Scope:
 - Replace membrane filtration units & piping
 - Construct temperature-controlled buildings
 - Upgrade water quality instrumentation & laboratory equipment
 - Replace electrical conduits & water piping
 - Install MWD-furnished process control equipment
 - Perform tie-ins & start-up testing
- Construction is approx. 35% complete

Change Order
Authority Increase for
CRA Domestic Water
Treatment Systems
Upgrades

Change Order Authority Limits

- Change order authority determined by Admin. Code (Section 8123)
 - GM authority to execute change orders is the greater of:
 - 5% of the original contract amount
 - \$250,000
- Since 2018 – 115 contracts have been completed
 - 110 of the 115 contracts have stayed within their original change order authority amount
 - Average change order authority is 2.6%

Change Order Authority Increase

Contract No. 1949	
• Original contract value:	\$32,824,000
• Original change order authority:	\$1,641,200
Requested Action	
• Proposed increase for Contractor supplied PLCs:	\$4,800,000
• New change order authority:	\$6,441,200



Electrical Panel at
Intake Pumping Plant

Process Controls Approach

- Remote Terminal Units (RTUs) control process logic & facilitate communication between the domestic water treatment system & Metropolitan's SCADA system
 - RTUs purchased & programmed by District Forces
 - RTUs provided to contractor for installation
 - Total of 9 RTUs required for project
 - Specialty vendor took exceptions to Terms & Conditions
 - No mutually agreeable resolution
- RTUs replaced with Programmable Logic Controllers (PLCs)
 - Similar functionality
 - Programmed for integration with SCADA
 - Allows for enhanced security features



Existing RTU

Scope Changes Required to Convert to PLCs

- Revisions required to existing design drawings
- New specifications developed for PLCs
- Additional work by contractor
 - Procure, program, test, & commission PLCs
 - Procure and assemble PLC panels
 - Make additional electrical modifications required for PLCs
- Expedite submittals, procurement, & shipping to minimize construction delays



PLC Panels (Typical)

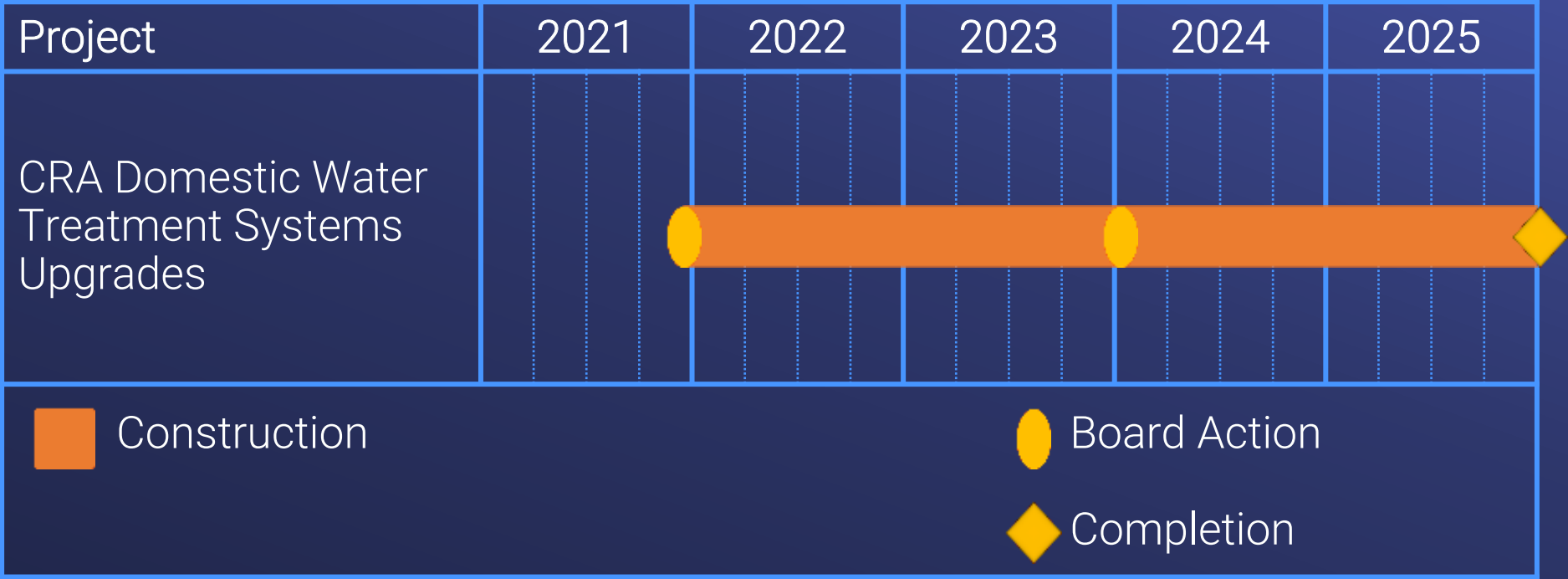
Alternatives

- Staff attempted to negotiate terms & conditions with current RTU supplier
 - Final terms were deemed unfavorable
 - Risk of procurement delays & substandard equipment quality
 - Concerns about warranty & long-term equipment support
- Selected Alternative – Issue change order for PLCs
 - Ensures reliable communication with water treatment systems
 - Minimizes construction delays
 - Most cost-effective approach

Change Order Authority

CRA Domestic Water Treatment Systems Upgrades

Project Schedule



Board Options

- 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.

- Option #2

Do not authorize an increase in change order authority.

Staff Recommendation

- Option #1

