



Engineering, Operations, & Technology Committee

Change Order Authority Increase for CRA Overhead Bridge Cranes Project

Item 7-4

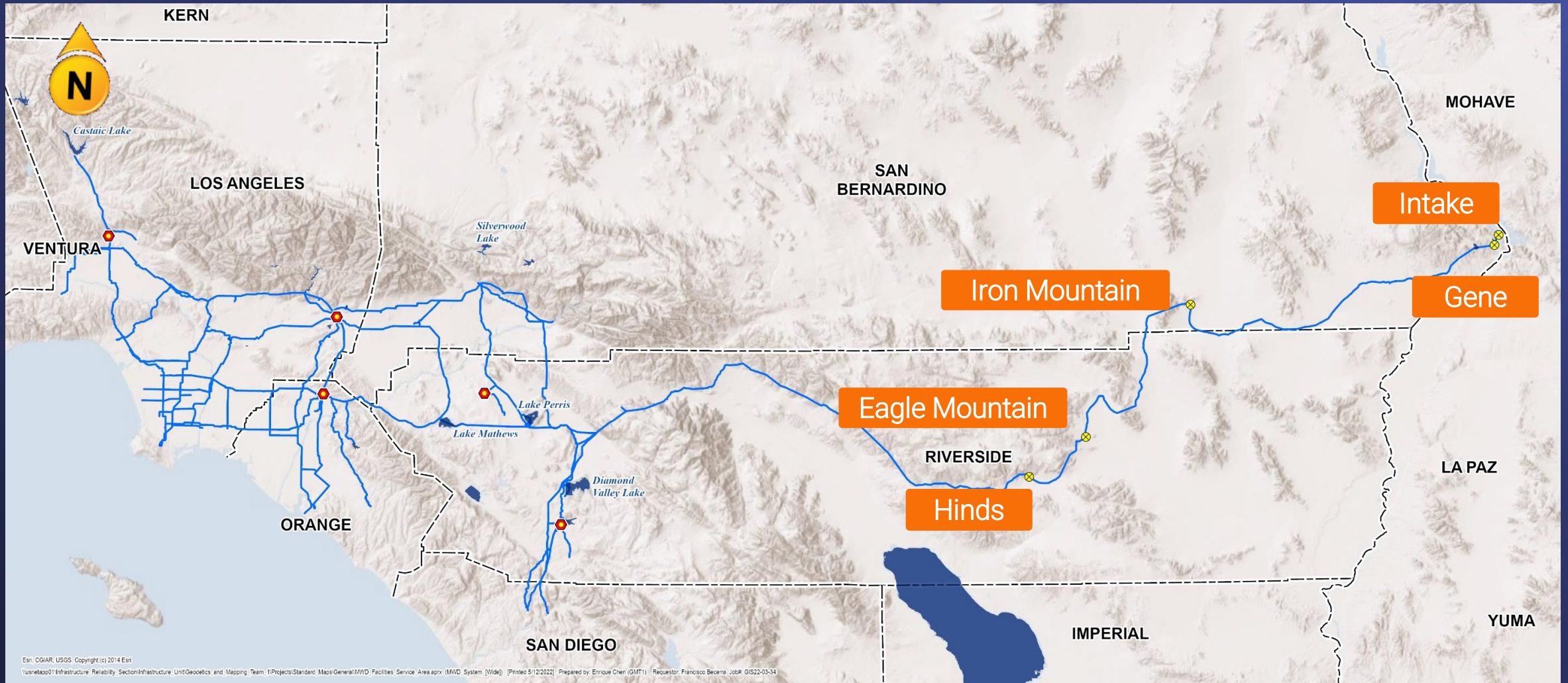
March 13, 2023

Change Order
Authority
CRA Overhead
Bridge Cranes
Replacement

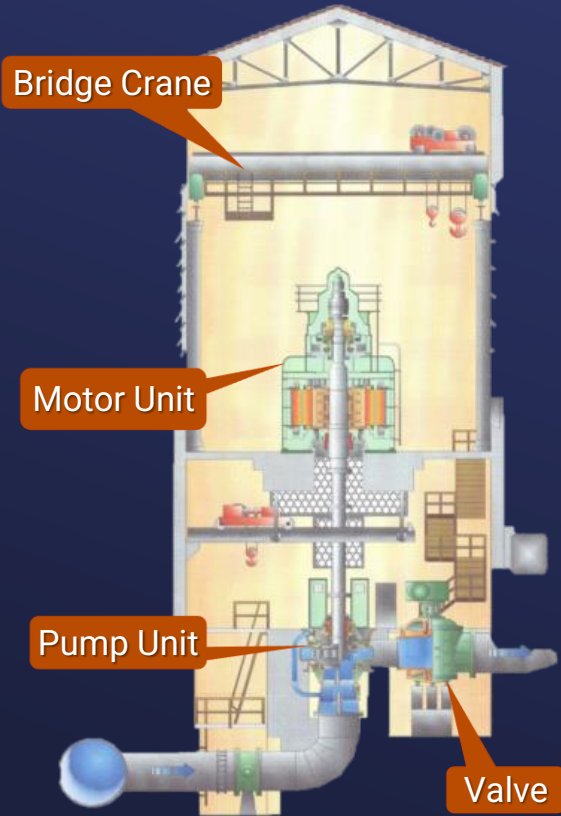
Current Action

- Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants

Location Map



CRA Overhead Bridge Cranes Replacement



Background

- Installed in the 1930s
- Single overhead bridge crane per plant
- Spans entire width of the plant
- Primary means to perform maintenance
- Cranes are deteriorated & require replacement
- Spare parts are not available
- Important precursor project to support CRA pump rehabilitation program

CRA Overhead Bridge Cranes Replacement



Overhead Crane in Use

Contract Scope

- Sept. 2020 - Contract awarded to J.F. Shea Const., Inc.
- Contract amount - \$13,419,000
- Contract scope
 - Remove & replace overhead bridge cranes at all five CRA pumping plants
 - Upgrade bridge crane electrical system
 - Structural retrofit of crane supports
 - 6-week outage period per pumping plant
 - Work completed sequentially by plant
 - Initial plant – Gene Pumping Plant
- Project is 36% complete

Change Order Authority Limits

- Change order authority determined by Admin. Code (Section 8123)
 - GM authority to execute change orders is the larger of:
 - 5% of the original contract amount
 - \$250,000
 - Board approves any increase in authority
- Change Order Authority – CRA Cranes Project
 - Current authority : \$670,950
 - Current authority utilized: \$527,000

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Current Project Status

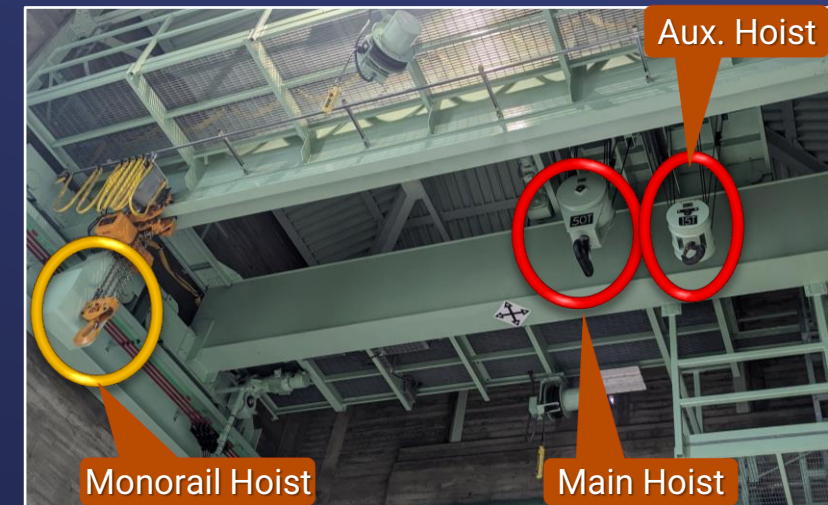
- October 2022 – New crane successfully installed at Gene Plant
 - Upon start-up & commissioning, a number of needed enhancements were identified
 - Resulted in owner-directed changes to increase functionality
 - Staff recommends including these enhancements at remaining four plants
- November 2022 – new crane delivered to Eagle Mtn Plant
 - Differing site conditions encountered during installation
 - Contractor directed to modify crane



New Crane Girder Installation @ Gene

Wireless Radio Controllers

- Wireless radio controllers used to operate main & auxiliary hoists remotely
 - As designed - main & auxiliary hoists can be operated individually or in-sync with each other
 - Operations staff also needs ability to operate hoists concurrently but not in-sync
 - Auxiliary hoist was provided as part of separate monorail attachment
 - Currently operates independently with a separate controller
- Enhancements will:
 - Improve operational functionality of hoists to operate concurrently & provide additional flexibility
 - Allow operation of all three hoists from one controller



Main, Aux., & Monorail Hoists

Pendant Controllers

- Pendant controllers serve as a hard-wired backup to radio controllers
 - Centrally located on a reel mount for manual retraction
 - Concerns with pendant snagging on equipment
- Enhancements will:
 - Relocate pendants away from equipment
 - Protect equipment
 - Increase safety



Pendant - Lowered Position

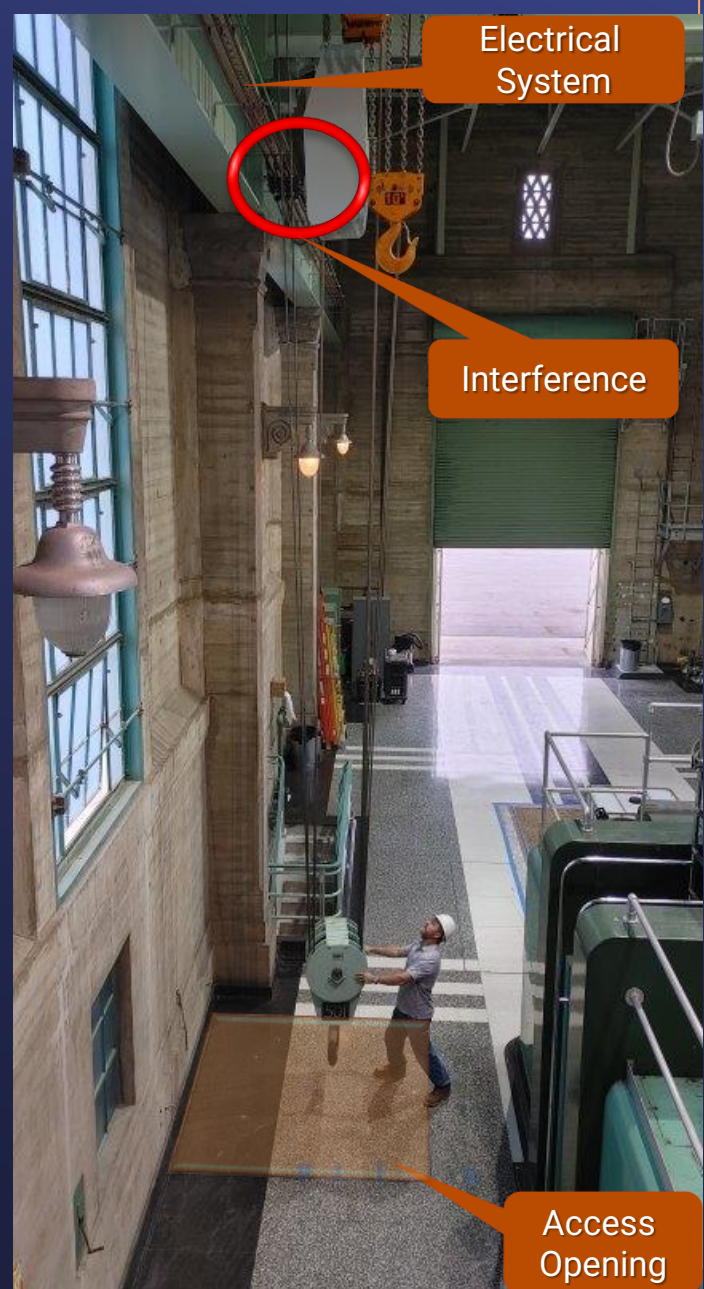
Change Order Authority CRA Overhead Bridge Cranes Replacement

Differing Site Conditions

- Condition exists at Eagle Mountain Pumping Plant only
 - Roof truss system expanded as part of seismic retrofit project in early 1990s
 - Structural beams interfere with new crane's movement
- Modify crane height to resolve conflict



Seismic Retrofit



Electrical System

Interference

Access Opening

Electrical System Modifications

- Condition exists at all five plants
- Crane's electrical system interferes with hoist's ability to reach pump bay floor openings adjacent to one wall
- Changes will:
 - Modify electrical system to improve clearances
 - Enhances safe operations



Hoists Below Motor Room Floor

Interference with Electrical System

Change Order Authority Increase

Contract No. 1946

- Original contract value: \$13,419,000
- Current change order authority: \$670,950
- Change orders executed to date: \$527,000

Requested Action

- Increase change order authority by: \$500,000
- New change order authority: \$1,170,950

Change Order Authority CRA Overhead Bridge Cranes Replacement

Alternatives

- Complete only differing site conditions work
 - Change order authority increase request reduced to \$110,000
 - Complete enhancements & modifications under a separate stand-alone contract
 - Increases project costs, impacts maintenance
 - Potentially voids crane warranty and may pose safety risks
- Selected Alternative
 - Use current contractor to complete change order work
 - All work completed in a timely & cost-effective manner

Project Schedule



Board Options

- Option #1
 - Authorize an increase of \$500,000 in change order authority for the contract to replace the overhead bridge cranes at the five Colorado River Aqueduct pumping plants.
- Option #2
 - Do not authorize an increase in change order authority.

Staff Recommendation

- Option #1

