



Engineering, Operations, & Technology Committee

# Change Order Authority Increase for CRA Overhead Bridge Cranes Project

Item 7-4

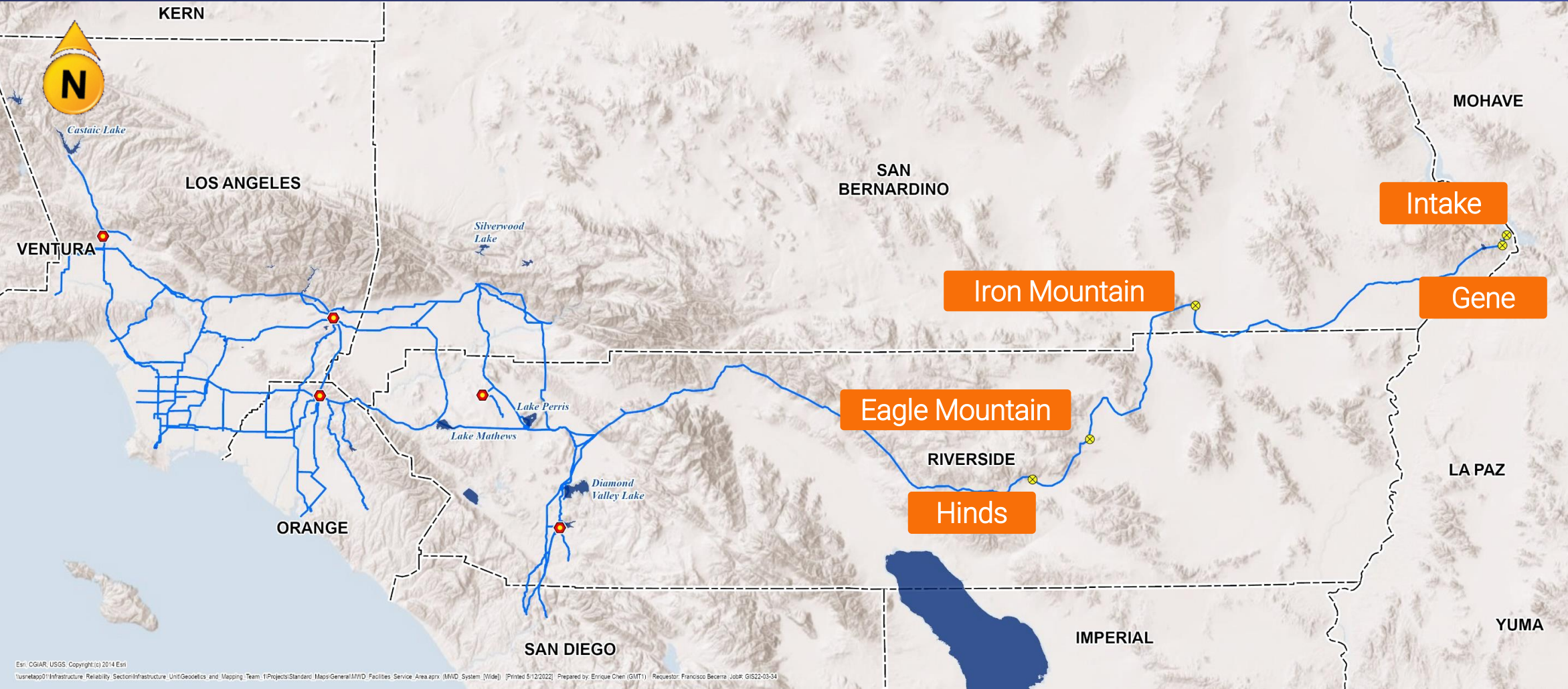
March 13, 2023

## Change Order Authority CRA Overhead Bridge Cranes Replacement

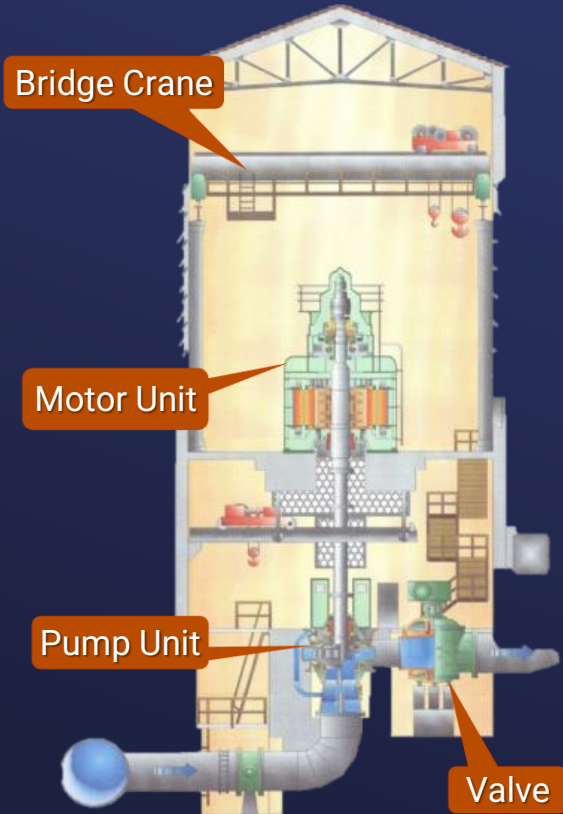
### Current Action

- 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 CRA Overhead Bridge Cranes Replacement

### 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

# 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

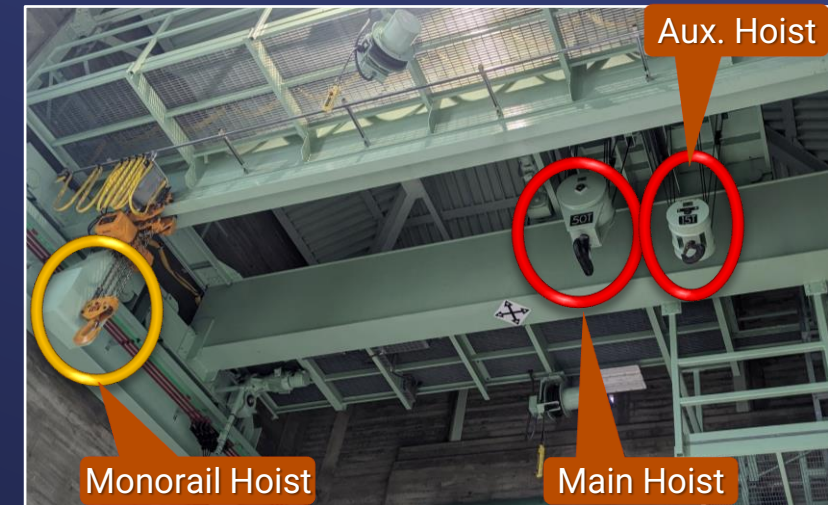


New Crane Girder Installation @ Gene



# 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

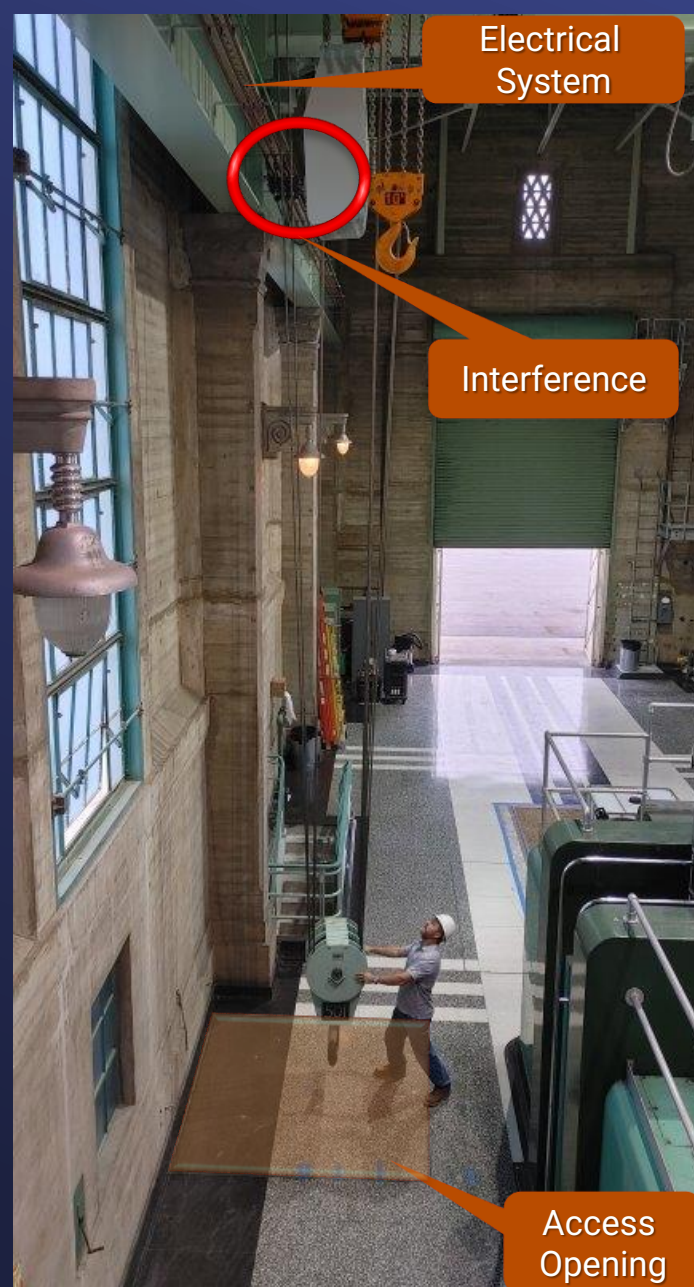
## Differing Site Conditions

- 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





Interference with Electrical System

March 13, 2023

# 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



# 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

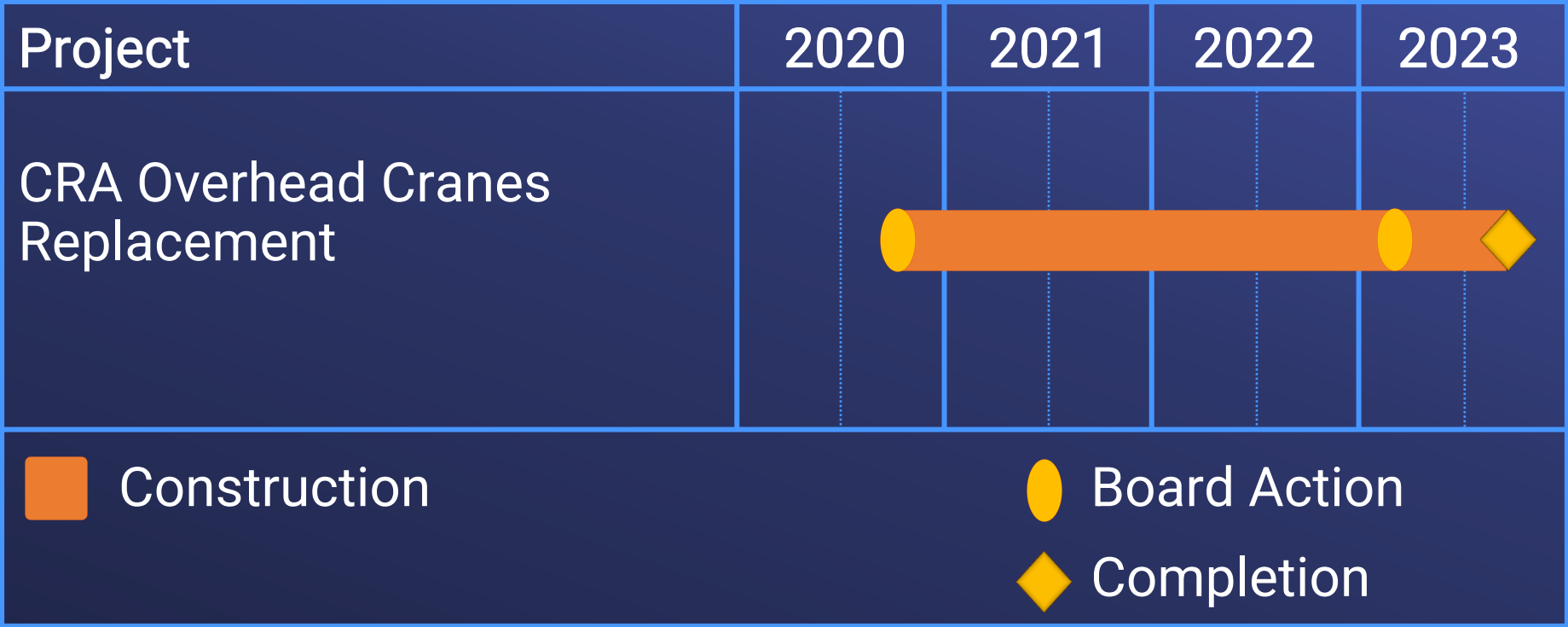
- Increase change order authority by: \$500,000
- New change order authority: \$1,170,950

## 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

