



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

4/12/2016 Board Meeting

7-3

Subject

Authorize increase in change order authority for the seismic retrofit of the Upper Feeder's Santa Ana River Bridge (Approp. 15441)

Executive Summary

This action authorizes an increase in the General Manager's authority to execute change orders on the construction contract for the seismic retrofit of the Santa Ana River Bridge. During the portion of the work within the streambed, the contractor encountered differing subsurface conditions than had been expected. Staff has negotiated the resulting cost impact to the contract, and recommends that the change order authority be amended at this time so the work may continue without delay for the remainder of the contract.

Timing and Urgency

The scope of the seismic retrofit of the Upper Feeder's Santa Ana River Bridge includes replacement of the bridge's existing base isolators with new isolators that are designed to meet current seismic codes. In addition, the bridge components are being strengthened by adding cover plates, stiffener plates, and weld connections, while steel reinforcement is being added to the existing unreinforced caissons that extend deep into the streambed. During the work within the streambed, the amount of sediment cover above the caissons was found to have increased from five feet to 12 feet due to deposition from storm flows. As a result, the contractor was required to modify its drilling operations, which resulted in additional labor and equipment costs.

Metropolitan's construction contracts are typically completed with final change order amounts falling well within the General Manager's Administrative Code authority. Use of the existing contractor to perform the additional drilling work represented the most cost-effective and expeditious means to complete the reinforcement of the Santa Ana River Bridge. No additional funds are requested in this action, as sufficient funds were previously appropriated and are available in the capital appropriation.

Details

Background

The Upper Feeder was constructed in 1936 as part of Metropolitan's original water delivery system. The 116-inch-diameter welded-steel pipeline extends 60 miles from Lake Mathews to the Eagle Rock Control Facility in the city of Los Angeles. The feeder conveys untreated water from Lake Mathews to the F.E. Weymouth Water Treatment Plant, and then delivers treated water to the Central Pool portion of the distribution system.

The Upper Feeder crosses the Santa Ana River with a 1,010-foot-long steel truss bridge in the city of Jurupa Valley. The pipeline is supported within the bridge superstructure, which consists of an 18-foot-wide steel deck with two 22.5-foot-tall steel truss sides. The bridge superstructure is supported by 12 concrete piers that vary in height from 20 to 43 feet. The concrete piers sit on top of unreinforced concrete caissons which are embedded into bedrock below the streambed, at depths reaching 40 feet. Between the bridge deck and the concrete piers is a base isolator system consisting of 28 base isolators. The purpose of these base isolators is to minimize lateral movement of the bridge superstructure caused by seismic shaking of the piers.

Multiple active faults are located within the vicinity of the bridge, including the San Jacinto, Elsinore, Chino-Central and Whittier Faults, which are capable of generating earthquakes up to 7.5 in magnitude. The bridge is vulnerable to damage in the event of a significant earthquake. Due to the importance of the Upper Feeder in delivering untreated water to the Weymouth plant, seismic strengthening of the bridge is presently underway.

In August 2015, Metropolitan's Board awarded a \$2,998,000 construction contract to Kiewit Infrastructure West Co. for structural upgrade of the Upper Feeder's Santa Ana River Bridge. The scope includes: replacing the existing base isolators with new isolators designed to meet current codes; strengthening the bridge components and weld connections; reinforcing the caisson foundations; repairing corroded steel truss members and a deteriorated access platform; and recoating an expansion joint located at the mid-span of the bridge. Construction is scheduled to be completed by April 2016.

Metropolitan's Administrative Code authorizes the General Manager to execute change orders on construction contracts in an aggregate amount not to exceed 5 percent of the initial amount of the contract or \$250,000, whichever is greater. If changes occur on a construction contract that will exceed this total, additional authorization from Metropolitan's Board is required. At this time, the subject contract has experienced changes that will exceed the General Manager's Administrative Code authority.

Seismic Retrofit of the Santa Ana River Bridge—Increase in Change Order Authority (No funds required)

Reinforcement of the bridge's existing unreinforced concrete caissons was accomplished by drilling 6-inch-diameter, 40-foot-deep holes through the top of each 17-foot-diameter caisson; removing the caisson cores; inserting steel cylinders and reinforcing bars into each hole; and filling the holes with epoxy. A total of 128 cylinders were required to complete the caisson reinforcement.

During the cylinder installation work, differing site conditions were discovered in the streambed including an increase in sediment cover over the caissons from 5 feet to 12 feet. This increased cover occurred due to sediment transport along the river during storms. The sediment also included a significant quantity of boulders and debris within the soil stratum. Due to the variable conditions within an active streambed, the environmentally sensitive nature of the work site, and the resulting constraints of environmental permits for the project, the actual conditions encountered in the field differed from the anticipated conditions described in the specifications. To accommodate this change, the contractor was required to modify its drilling operations including switching from auger boring to directional drilling, which required use of more powerful equipment, and adding another boring subcontractor to meet environmental deadlines for project completion. As a result, the contractor was required to expend additional time and resources to prepare the caissons for insertion of the reinforcing steel. The caisson reinforcement work was completed in February 2016.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract up to a maximum of \$250,000. To date, staff has executed a total of \$30,000 in change orders. In order to fully resolve the issues described above with the caisson reinforcement, staff recommends that the change order authority be increased by \$160,000, for a new maximum amount of \$410,000. This increase will enable staff to address any other unanticipated issues that arise during the remainder of the contract work, without delaying contract completion.

This action authorizes an increase in the General Manager's authority to execute change orders for the Santa Ana River Bridge seismic retrofit from \$250,000 to an aggregate amount not to exceed \$410,000. No additional funds are requested, as sufficient funds were previously appropriated and are available within the capital appropriation.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2015/16 capital expenditure plan. See [Attachment 1](#) for the Location Map.

Project Milestone

April 2016—Completion of the seismic retrofit of the Upper Feeder's Santa Ana River Bridge

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) for the Santa Ana River Bridge Seismic Retrofit and Routine Maintenance project. The MND was distributed for a 30-day public review period that began on September 21, 2012 and ended on October 20, 2012. The Board later adopted the MND and the Mitigation Monitoring and Reporting Program (MMRP) on March 12, 2013. The present action is solely based on an increase in change order authority of a construction contract for the seismic retrofit project, and not on any changes to the approved project itself. Hence, the previous environmental documentation acted on by the Board in conjunction with the proposed action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed action.

The fiscal action of a change order is not subject to CEQA because it involves other governmental fiscal activities which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action has been previously addressed in the adopted 2013 MND and MMRP, and that the fiscal aspect of a change order is not subject to CEQA (Section 15378(b)(4) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action has been previously addressed in the approved 2013 Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and that no further environmental analysis or documentation is required, and that the fiscal aspect of a change order authority is not subject to CEQA, and

Authorize increase of \$160,000 in change order authority for the seismic retrofit of the Upper Feeder's Santa Ana Bridge, up to an aggregate amount not to exceed \$410,000.

Fiscal Impact: None. Funds are available within the remaining budget under Approp. 15441

Business Analysis: This option will allow timely completion of the Santa Ana River Bridge seismic retrofit project, while minimizing delays to the contractor.

Option #2

Do not authorize an increase in change order authority at this time, and direct staff to revisit the amount negotiated with the contractor for the additional work.

Fiscal Impact: Unknown

Business Analysis: This option is unlikely to result in lower costs for the extra work performed, and may cause further project delay.

Staff Recommendation

Option #1



Gordon Johnson
Manager/Chief Engineer
Engineering Services

3/21/2016

Date



Jeffrey Kichtlinger
General Manager

3/23/2016

Date

Attachment 1 – Location Map

Ref# es12642149

Distribution System

