



Board Report

File #: 2021-0591, File Type: Informational Report

Agenda Number: 34.

CONSTRUCTION COMMITTEE  
OCTOBER 21, 2021

**SUBJECT: OFFICE OF THE INSPECTOR GENERAL CHANGE ORDER CONSTRUCTION SPOT CHECKS**

**ACTION: RECEIVE AND FILE**

**RECOMMENDATION**

RECEIVE AND FILE Office of the Inspector General Change Order Construction Spot Check Report for the period June 1, 2021 to August 31, 2021.

**ISSUE**

On January 25, 2018, the Metro Board directed the Office of the Inspector General (“OIG”) to conduct random spot checks on change orders for the projects listed in the quarterly program management report to ensure that the CEO Delegation of Authority to approve Construction Change Orders Policy is performing in the manner desired by the Board of Directors.

**BACKGROUND**

The OIG’s Construction Change Order Spot Check Program (“Spot Checks”) focuses on approved change orders and modifications that exceed \$1,000,000. The four change orders in this report were selected from the Program Management Major Project Status Report (Legistar file # 2021-0580) covering June 1, 2021 to August 31, 2021. The information for the Spot Checks was collected from the Program Management Information System (PMIS) which is the department’s database system. Also, TEAM meetings and telephonic interviews were conducted with Metro Program Management, Project Control, and Procurement staff from each involved project office.

We found that all four of the change orders in this report were:

- Negotiated and executed more expeditiously than would have occurred pursuant to the former Board approval process,
- Approved faster with the new delegation of authority, and
- Negotiated at lower cost than the contractors’ proposed price.

Each Spot Check summarizes the following areas:

- Description of the change order,
- Change order detail,

- Scope of Work,
- Budget,
- Schedule: Time to execute the change order, and
- Recommendations, if any.

Metro's Program Control department will provide responses to the recommendations in this OIG Spot Checks Report within 30 days after this Report is issued. Included with this Report is a spreadsheet on the status of responses concerning former OIG Spot Check Report recommendations.

## **DISCUSSION**

### **Spot Checks Performed in this Quarter**

#### **Spot Check #1 - Regional Connector - Transit Corridor Project**

This OIG Spot Check report concerns the Regional Connector - Transit Corridor Project (Contract C0980 MOD-00206): Add Wye Junction Fan Plant - Construction

#### **Change Order Detail**

See Attachment A Spot Check #1 chart.

#### **Summary #1**

**Scope of Work** - This Modification is part 4 of 4 is for construction of a Wye Fan Plant System (Fan System) at the 1st Street and Alameda junction. (Part one was for the design in June 2016, MOD 0033, with an award of \$1,210,000. Part two was a revision to the design in March 2017, MOD 0087, with an award of \$76,000. Part three was to procure long-lead time mechanical equipment in November 2018, CO-00023, with an award of \$1,200,000.) Metro provided authorization for the contractor to proceed with Modification part 4 up to a not-to-exceed limit of \$11,000,000. The final costs of Modification part 4 Fan System, nevertheless, reached 18,700,000.

This new Fan System replaced the original eight Jet Fan Ventilation design. The new Fan System was jointly developed by the contractor and Metro and reviewed by Metro Fire Life Safety Committee. The new Fan System addresses the concerns of Metro Operations and Fire Life Safety by moving the air more efficiently while potentially having one of the fans shut down for repair at the interior junction of the converging/diverging tunnel segments. The funding for design and construction was approved by the Metro Board in December 2015. That approval was for \$12,000,000.

**Budget** -This modification was negotiated, and the award amount is \$18,700,000. The Contractor's proposal was \$22,031,075 and the ICE was \$18,526,511. The award amount was \$3,331,075 (15%) under the Contractor's proposal. The negotiated amount was \$173,489 (1%) over the ICE. Staff stated that funds for this change are within the approved Life-of-Project budget.

**Schedule** - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on June 7, 2021. The modification was awarded on June 16, 2021 and was completed in 10 workdays. Under the prior Board approval method for change orders, assuming a September Board meeting date, August was dark, it would have taken an additional 77 workdays to complete the work.

**Recommendation** - Since the Board approved of a budget for this item in 2015 at \$12 mil., the cost has increased to a total of \$21,186,000 (a 77% increase). This Fan System cost has been reported in pieces, as parts were completed, but not as a whole to indicate the cost creep overall over time. We recommend that when LOP information is being periodically provided to the Board that it includes a summary, per project, to show historical cost information over the life of each project. That summary should indicate if they anticipate completing the project within the current LOP and how many LOP increases have occurred so far.

### **Spot Check #2 - Division 20 Portal Widening Turnback**

This OIG Spot Check report concerns the Division 20 Portal Widening Turnback Project (Contract C1136 MOD 00020): Additional Scope and Additional Requirements for the Division 20 Portal Widening and Turnback Project

#### **Change Order Detail**

See Attachment A Spot Check #2 chart.

#### **Summary #2**

**Scope of Work** - This project is built on an old fuel tank yard. It has differing site conditions due to the toxic soil removal, multiple unknown existing utilities, a 100-year old historical bridge that requires modification, and is an active heavy rail yard requiring Rail Operations Center (ROC) access.

The design prepared by the consultant was based on light rail standards and not an active heavy rail yard standard. Metro Operations has identified this as a safety issue during their review and requires a major change to the design layout of the tracks. The tracks must be spaced further apart to meet current national track standards for heavy rail. The standard Metro Rail Design Criteria (MRDC) was written for light rail. The Division 20 yard is to be used for heavy rail cars in order to serve the new Purple line rail tracks.

The Division 20 Project deadline for completion is prior to the delivery, storage, and testing of the new rolling stock of 150 heavy rail cars for Purple Line Ext. 1, 2, and 3. Because of the timeline, Project Management staff made the decision to move forward with the request for proposal for construction pending correction of the design errors. There were multiple design errors by the consultant. To account for these errors, a larger than typical contingency was included in the budget; 20%.

The large change order (\$43.3 mil.) is due to changes in the design to the track. The design was changed to reflect the correct spacing which necessitates multiple other changes. This change order is to demolish and remove a large amount of track, and install 6.2 miles of new track. The traction power sub-station, all the utilities, train car wash, lighting, and underdrains are to be demolished and rebuilt. The 100-year-old historical 1st Street bridge must have upgrades and the train portal north of 1st Street must increase in size to allow for more rail track to run through it.

**Budget** - The Life of Project (LOP) budget for this project is \$801,749,577.00, including a contingency of \$92,778,555. This change order will use about 50% of the 15% unallocated portion of this contingency amount. An increase in the LOP will be sought by end of year.

The Contractor's original proposal was \$52,530,836 and they reduced it to \$49,486,000. Thereafter workshops were held to review each line item of the Contractor's proposal. Metro identified items in the Contractor's proposal which were not allowed pursuant to the construction contract. The final

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amount negotiated is \$43,300,000. The ICE was \$22,565,624. Primary reasons for the disparity between the contractor's price and the ICE is the Contractor's higher estimate of labor cost for hours to be worked (not the per hour rate), the number of equipment to be rented and period of use, how long each activity will take to complete, and the contractor is including a contingency for events likely to occur affecting time to complete tasks. There was little dispute about per unit pricing of materials, though there is a dispute about the quantity of materials needed to accomplish the job tasks. The award amount is \$6,186,000 (12.5%) under the Contractor's rebid proposal. The negotiated amount was \$20,734,376 (92%) over the ICE. Construction management staff believe the price might be reduced somewhat if a Dispute Resolution Board or other such option were utilized, but the delays resulting from utilization of such options would result in costs that exceed the reductions likely achievable so based on that risk, they feel this price is the most speedy and economical considering those risk factors.

Change orders generally occur in a noncompetitive situation and Metro as usual is attempting to proceed at high speed. When performing our construction change order spot checks we have observed many instances where Metro has agreed to a final price that is significantly higher than the ICE. This might be either because the ICE was too low or the contractor is estimating too high and the price could not be negotiated any lower within a reasonable time. Sometimes the percentage over the ICE is high but the dollar amount is not that significant. Noncompetitively procured change orders place Metro in an inferior bargaining position. The more extensive the planning, preparation, and pre-construction work, the lower the chances of large change orders.

**Schedule** - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on June 25, 2021. The modification was awarded on August 9, 2021 and was completed in 31 workdays. Under the prior Board approval method for change orders, assuming a September Board meeting date, August was dark, it would have taken an additional 63 workdays to complete the work.

**Recommendation** - The OIG recommends:

1. When Metro needs to expedite a project, include Operations in the initial planning phase early, prior to and during design so they can provide constant input during the design.
2. Explore with Operations if they need additional resources to dedicate full time to assist in the intense design, planning, and implementation pre-opening phases of Metro's rail infrastructure/capital projects, or other ways in which Program Management and Operations can work together to approach these projects to maximize cooperation, communication, and assistance.
3. Have the Legal Department review our designer contracts to determine if they are adequate to hold contractors accountable, enforceable, and require use of bonds and proof of adequate insurance to cover errors of this type and resulting in cost of this magnitude.

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**Spot Check #3 and #4 - Purple Line Extension Section 1 Transit Project**

**General** - The two following modifications (137 and 138) for Purple Line Extension Section 1 are related. Both modifications are due to excess groundwater with high levels of sulfides which needed to be pumped out at the equipment transport shaft (the Shaft) where the tunnel boring machines were removed at the Wilshire and Western location. It is mandatory for the Shaft to be kept dry until underground construction is complete. Contractually these modifications are from differing site conditions, where the flow in gallons per minute (gpm) of the ground water was originally stated to be at 75 gpm in the Geotechnical Baseline Report (GBR) but that proved to be incorrect. The actual flow is at 350 gpm. This forced the contractor to devise solutions to remove the excessive groundwater and treat the groundwater before allowing the water into the city's storm drain system.

Maintenance of the dewatering wells is still required and the wells will continue to pump out water until construction is complete. The negotiated amounts for both these modifications have been forecasted through the end of construction; June 30, 2022.

**Spot Check #3 - Purple Line Extension Section 1 Transit Project**

This OIG Spot Check report concerns the Purple Line Extension Section 1 Transit Project (Contract C1045 MOD-0137): Increased Well Maintenance at Western Shaft due to Groundwater Chemistry Impacts

**Change Order Detail**

See Attachment A Spot Check #3 chart.

**Summary #3**

**Scope of Work** - Both the contractor and Metro took groundwater samplings which demonstrated that the water chemistry characteristics were causing corrosive buildup in the dewatering wells and water treatment system. The result was pump failures; well plunger cleaning treatments, backwash, filter fabric pressure washings, and well cleanings using hydrogen peroxide to avoid bacterial buildup. The cleanings will continue on a monthly basis until the end of dewatering operations when the station is substantially built (through approximately 2022). Three of the dewatering wells pumps were replaced due to corrosive build-up in December. 2018, January. 2019, and March 2019.

Excavation was impacted due to the installation of additional trenches, French Drain systems, and sumps that were needed below a 50-foot depth to control suspended water. Additional workers were hire that include a General Forman, Gas Testers, and Traffic Control staff performed work at Wilshire Blvd. on the wells.

**Budget** - This modification was negotiated, and the award amount is \$2,700,333. The Contractor's proposal was \$3,728,954 and the ICE was \$2,272,535. The award amount was \$1,028,621 (28%) under the Contractor's proposal. The negotiated amount was \$427,798 (19%) over the ICE. Staff stated that funds for this change are within the approved Life-of-Project budget.

**Schedule** - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on August 9, 2021. The modification was executed on August 10, 2021 and was completed in 1 workday. It should be noted that scope of work was agreed to on July 20, 2019, but due to the dewatering process continuing the contractor and Metro had an understanding to proceed with the work and complete the change order when the station was near completion. Under the prior Board approval method for change orders, assuming an October Board meeting date, it would have taken 58 workdays to complete the work.

**Recommendation** - See spot check #4 for the combined recommendation.

**Spot Check #4 - Purple Line Extension Section 1 Transit Project**

This OIG Spot Check report concerns the Purple Line Extension Section 1 Transit Project (Contract C1045 MOD-0138): Additional Dewatering Treatment and Discharge Impacts at Western

**Change Order Detail**

See Attachment A Spot Check #4 chart.

**Summary #4**

**Scope of Work** - Based on sampling data from MOD 137, the groundwater treatment system had to be redesigned to adequately treat hydrogen sulfide levels of 10.7 mg/l in accordance with federal dewatering discharge requirements and to accommodate the large volume of groundwater removal (75 gpm increased to 350 gpm) at the Shaft at Wilshire and Western.

This modification is for the engineering, design, and parts for a larger dewatering treatment system at the Shaft at Wilshire and Western. This system includes: 1) an increased pipe size (from 3-inch to 6-inch), 2) an increased magnetic flow meter (from 3-inch to 6-inch), 3) an increased pump size (from 10 hp to 30 hp units), 4) an in-line mixer system for the reduction of sulfides, 5) a 2,000-gal chemical storage tank with monthly chemical delivery, 6) two metering pumps with tubing, 7) new site safety equipment (shower, eyewash, and containment), and 8) a larger settling tank (from 8,000 to 20,000 gal.) and other equipment associated with a larger treatment plant.

**Budget** -These modifications were negotiated, and the award amount is \$3,109,648. The Contractor's proposal was \$3,721,859 and the ICE was \$3,077,031. The award amount was \$612,211 (16%) under the contractor's proposal. The negotiated amount was \$32,617 (1%) over the ICE. The agreed upon settlement covers plant operations and maintenance through June 30, 2022. Staff stated that funds for this change are within the approved Life-of-Project budget.

**Schedule** - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on June 24, 2021. The modification was executed on August 10, 2021 and was completed in 33 workdays. Under the prior Board approval method for change orders, assuming an October Board meeting date, it would have taken 89 workdays to complete the work.

**Recommendation** - The OIG recommends that all dewatering change orders for this project should be evaluated or audited. The Geotechnical Baseline Report issued by the consultant to Metro was not accurate for the soil type, ground water, and hydrogen sulfide levels for each segment of Purple Line Section 1 and the consultant might be held liable for some of the costs of differing site conditions not correctly determined by the consultant. Unplanned dewatering site conditions also cost Metro \$15.8 mil. at the La Brea Station and \$16.8 mil. at the La Cienega Station in 2020 and 2019 respectively.

**FINANCIAL IMPACT**

This report will have no Financial Impact to the agency.

**Impact to Budget**

- For all of the construction change orders reviewed, Metro states the funds are within the

approved budget, and will utilize the contingency funds to cover the costs from the LOP budget.

- Spot Check #1) \$18,700,000 Regional Connector Transit Corridor Project
- Spot Check #2) \$43,300,000 Division 20 Portal Widening Turnback Project
- Spot Check #3) \$2,700,333 Purple Line Extension Section 1
- Spot Check #4) \$3,109,648 Purple Line Extension Section 1

## **EQUITY PLATFORM**

We considered whether these change orders presented any equity related issues on their face. All of the locations (Alameda and 1<sup>st</sup> Street in China Town, Division 20 at the old railroad tank yard and the 100-year old 1st Street Bridge updates, along with dewatering problem at Western and Wilshire in Korea Town which are the subject of these change orders are within or adjacent to Equity Focus Communities (EFC's). Each of the construction projects are required to install tall (over 20-ft high) sound walls around the construction work sites to protect residential communities and office suites from the nuisance noise of construction. The exterior public side of the walls also serve as community advertisement for local businesses and keep the public safe as a barrier from the construction activities. The OIG did not receive any data concerning community impacts. Each of the contractors are striving to have work performed by Disadvantage Business Enterprises (DBE) typically at 12-15% implementation, for these change orders at these EFC sites. The OIG observed no obvious disparate impacts created by these change orders on small businesses, low-income persons, or by the performance of the work in a manner that impacted a disadvantaged community beyond what is typical and usual when conducting any construction.

## **IMPLEMENTATION OF STRATEGIC PLAN GOALS**

The recommendations that the Office of Inspector General has put forward support Metro's Strategic Plan Goal #5: Provide responsive, accountable, and trustworthy governance within the Metro organization and CEO goals to exercise fiscal discipline to ensure financial stability. The OIG mission includes reviewing expenditures for fraud, waste, and abuse in Metro program, operations and resources. For each selected change orders reviewed, the OIG evaluates whether there are red flags of fraud, waste, or abuse taking place. We report the details of the significant change orders and make recommendations consistent with the OIG's Construction Best Practices report dated February 29, 2016, more particularly focusing on lessons learned, improving efficiencies, and prudent spending.

Our goal is to provide rational, trustworthy information to the Board and support the efforts of Metro management to constantly improve and refine its efforts for the benefit of the public. The Office of the Inspector General will continue reporting to the Board the results of Construction Change Order Spot Checks selected from the Program Management Major Project Status Quarterly Report.

## **NEXT STEPS**

The OIG shall provide every quarter, an on-going spread sheet of recommendations to Program Control. Program Control and Program Management agrees to respond to the recommendations of the OIG within 30 days. The OIG continues to meet periodically to discuss reports, recommendations, and the status of implementation of the recommendations with Project

Management, and receive updates. The list of OIG recommendations and Metro management responses, is an attachment to this OIG report (Attachment B).

### **ATTACHMENTS**

Attachment A - Change Order Details for Spot Checks

Attachment B - Tracking Sheet of OIG Recommendations and Responses to last quarter

Attachment C - Power Point for October 2021 Construction Spot Checks

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