



Board Report

File #: 2018-0583, File Type: Informational Report

Agenda Number: 30.

CONSTRUCTION COMMITTEE OCTOBER 18, 2018

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

ACTION: RECEIVE AND FILE

RECOMMENDATION

RECEIVE AND FILE Office of the Inspector General change order/modification construction spot checks report.

ISSUE

On January 25, 2018, the Metro Board directed the Office of Inspector General (“OIG”) to conduct random spot checks on the projects listed in the quarterly program management report to ensure that the delegation of authority to approve construction change orders policy is performing in the manner desired by the Board of Directors.

BACKGROUND

I. SUMMARY

The OIG has developed a spot check program (“Spot Checks”) that primarily focuses on approved change orders and modifications that exceed \$1 million. The change orders in this report were selected from the October Program Management Major Project Status Report (File # 2018-0623), covering June, July, and August 2018. The information for the Spot Checks was collected from the Program Management Department’s database PMIS system. Also, in-person and telephonic interviews were conducted with Metro Program Management, Project Control, and Procurement staff for each individual project office.

The OIG has reviewed five change orders for the period of June 1, 2018, to August 31, 2018; one processed from Crenshaw/LAX, three from Westside Purple Line Extension Section 1, and one from Westside Purple Line Extension Section 2. This quarter the Regional Connector did not have any change orders above \$500 thousand.

We found that all five change orders were negotiated/approved/executed on average faster than the former Board approval process would have taken. In addition, the negotiated cost for one Change

Order was lower than the independent cost estimate (ICE) and four were higher than the Metro's ICE, but were lower than the contractor's proposed price. For the change orders/modifications the OIG reviewed, some of the Spot Checks have shown that the delegation of authority has, in certain cases, resulted

in:

- Minimizing/reducing delay costs,
- A negotiated amount that was reasonable for the work to be done; and
- Minimizing construction delays.

Each Spot Check summarizes the following areas:

- Introduction of change order/modification
- Facts of Change Order (charts and pictures shown on Attachment A)
- Scope of Work
- Budget
- Time to Execute Change Order
- Recommendations

Metro's Program Control department agreed to work with individual Project Management field offices to obtain responses to the recommendations in this report. They agreed to put responses to the OIG Spot Checks in a matrix and provide to the OIG within 30 days after the Board report is issued.

DISCUSSION

II. Spot Checks Performed in this Quarter

A. Spot Check #1 - Crenshaw/LAX Transit Project

This OIG Spot Check report concerns the Crenshaw/LAX Transit Corridor Project (Contract C988 MOD-00347.2).

Facts of Change Order

See Attachment A Spot Check #1 chart and pictures.

Summary #1

Scope of Work - This modification is to add lighted handrails to the center walkway in the two underground sections (UG1), which will facilitate emergency evacuation of the train. This change came about when the Metro Fire and Life Safety Group reviewed the preliminary designs. The Safety group was concerned about impaired visibility from smoke for exiting patrons during a fire in the tunnel and requested calculations to show the environment would be tenable. The contractor's designer performed the calculations and determined there would be visibility issues for passengers exiting the tunnel during an emergency. Lighted handrails and 4-inch wide thermoplastic edge striping were the solutions for emergency exiting situations. In addition to the lighted handrails, multiple power circuits, redundant circuits, routing on either side of the walkway, and adjustment to overhead lighting were added to the electrical design and construction.

Budget - The modification was awarded for \$1,600,000. The contractor's proposal was \$1,669,709 and the ICE was \$1,480,224. The award was 8.1% more than the Metro ICE but was lower than the contractor's proposal. See Attachment A Spot Check #1 chart.

Schedule -The initial review of preliminary plans by the Metro Fire and Life Safety Group was in February 2017. Calculations, decisions and the agreed upon scope of work occurred on August 16, 2018. The modification was executed on August 31, 2018, twelve work-days later. If this modification were to go to the Board it would be on the October agenda which would be 51 work-days later. From the final scope of work to the October Board meeting there would be a time savings of 39 work-days.

Recommendation

This is a unique situation with the UG1 not being a full continuous tunnel section and therefore has less light. It took over 18 months (February 2017) to evaluate options and come to an agreed upon solution. Management should note the steps and procedures in Lessons Learned and follow up during management group discussions, on ways to expedite and coordinate future situations involving evaluation of numerous options to quickly reach a best alternative.

B. Spot Check#2 - Purple Line Extension Section 1 Transit Project

This OIG Spot Check report concerns the Purple Line Extension Section 1 Transit Project (Contract C1045 MOD-00060).

Facts of Change Order

See attachment A Spot Check #2 chart.

Summary #2

Scope of Work - This modification is the result of additional requirements identified in the Memorandum of Agreement (MOA) between City of Beverly Hills (COBH) and Metro. The contractor was awarded the Purple Line Extension Section 1 contract prior to the MOA being completed. The MOA included many additional requirements that have a significant financial impact.

Budget - The award amount for this modification is \$18,993,374. The contractor's proposal was \$20,828,391 and the ICE was \$17,015,066. The award was \$1,835,017 below the contractor's proposal or 8.8% less than the contractor's price to complete the work. The negotiated amount was 10.4% higher than the ICE. See attachment A Spot Check #2 chart.

Schedule - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on June 19, 2018, and the modification was executed on August 07, 2018, which was done in 36 work-days. If this modification were to go to the Board it would be on the September agenda which would be 73 work-days later. From the final scope of work to the September Board meeting there would be a time savings of 37 work-days. See attachment A Spot Check #2 chart.

Recommendation

This was a large dollar amount modification, but the contract administrator kept the award both close to the ICE and the contractor's proposal. The negotiation of the MOA with COBH took from October

2014 to February 2017 (over 28 months) to negotiate and therefore was not included with the award of the Purple Line Extension Section 1 Transit Project contract.

The OIG recommends to start future MOA processes with cities during the planning stages of the Environmental Assessment and identify the concerns/matters relating to the MOA in the Risk Registry.

C. 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-00061).

Facts of Change Order

See attachment A Spot Check #3 chart.

Summary #3

Scope of Work - This modification is to provide additional calculations and reports to reflect the changes pursuant to a Deviation Request (DR) and design-builders bonding expense. Metro Design Criteria states Building Settlement Criteria limits specifies acceptable building settlement of 0.5-inch, which included both Support of Excavation (SOE) and dewatering settlement. In the field, dewatering was significant and needed to be verified. Three separate contractors verified that there was significant dewatering settlement as much as 1.5-inches. Therefore the Metro Design Criteria needed to be updated. The dewatering settlement plus the SOE now allows up to 2 inches (0.5-inch SOE + 1.5-inch dewatering) for total settlement. The DR change requests three alert levels to be calculated at each stage of the excavation for movement. The contractor had to reconcile multiple comments and recalculate predicted alert values. Multiple submittals of Geotechnical reports and Instrumentation drawings were prepared to address the excess building settlement stated in the Metro DR.

Budget - The award amount for this modification is \$1,078,680. The contractor's proposal was \$1,277,305 and the ICE was \$1,208,883. The award amount was \$198,625 below the contractor's proposal or 15.5% less than the contractor's price to complete the work. In this situation, the ICE, the proposal, and the negotiated amount were all within close proximity of each other. See attachment A Spot Check #3 chart.

Schedule - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on July 5, 2018 and the modification was executed on August 1, 2018, which was done in 20 work-days. If this modification were to go to the Board it would be on the September agenda which would be 61 work-days later. From the final scope of work to the September Board meeting there would be a time savings of 41 work-days. See attachment A Spot Check #3 chart.

Recommendation

The OIG recommends this matter concerning dewatering and SOE be added to the Lessons Learned files and the separation of dewatering and SOE be updated in the Metro Design Criteria as a special case.

D. 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-00058).

Facts of Change Order

See attachment A Spot Check #4 chart and pictures.

Summary #4

Scope of Work - This modification is to purchase and install additional instrumentation that detects settlement. As discussed in Spot Check #3, building settlement comes from both SOE and dewatering settlement. As the earth at La Brea station is excavated, settlement of the adjacent structures and roadway must be monitored. Settlement due to dewatering at the La Brea station was found to be in excess of the Metro design criteria, original design, and calculations (Mod 00061 justifies the supplemental instrumentation). Instrumentation shall be purchased, installed, monitored and removed. The contractor is responsible for weekly monitoring for 99 weeks. Then quarterly reading will begin for 16 quarters. There will also be an additional 20 readings as requested by Metro. Instrumentation for monitoring and settlement points are to be set up on buildings, streets, sidewalks, and utilities. The instrumentation will electronically measure and record elevation changes. See attachment A Spot Check #4 pictures.

Budget - This modification was negotiated and award is \$1,386,678. The contractor's proposal was \$5,877,106 and the ICE was \$513,577. The award amount was \$4,490,428 below the contractor's proposal or 76% less than the contractor's price to complete the work. In this situation, the ICE did not accurately capture the work to be performed, therefore the independent estimate was not representative of work stated in the agreed upon scope of work. See attachment A Spot Check #4 chart.

Schedule - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on April 16, 2018 and the modification was executed on June 14, 2018, which was done in 44 work-days. If this modification were to go to the Board it would be on the June agenda which would be 54 work-days later. From the final scope of work to the June Board meeting there would be a time savings of 10 work-days. See attachment A Spot Check #4 chart.

Recommendation

The Independent Cost Estimate was not an accurate representation of work stated in the agreed upon scope of work. The OIG recommends that the project manager or knowledgeable person from the project team, establishes a coordination meeting both in the field and office for the estimator to see and hear each detail of new scope of work. Hearing and visualization of the scope changes will assist the estimator in preparing a more accurate Independent Cost Estimate.

E. Spot Check #5 - Purple Line Extension Section 2 Transit Project

This OIG Spot Check report concerns the Purple Line Extension Section 2 Transit Project (Contract C1120 MOD-00015).

Facts of Change Order

See attachment A Spot Check #5 chart and picture.

Summary #5

Scope of Work - This modification is to pay for professional services, furnish management, coordination, labor, equipment, materials and other services to perform the final design of the main station entrance for Century City Constellation Metro station.

Since late 2015, Metro management has been proactively coordinating with the developer of the property on the corner of Constellation Boulevard and Avenue of the Stars in an effort to facilitate a negotiated real estate acquisition. During preparation of the RFP, Metro management directed its engineering consultant to separate the drawings for the station entrance and the plaza from the rest of the station, and to put them at the back of the package so that they could be easily replaced as an amendment during the procurement, or as a contract modification early in the final design phase of the design/build contract. This was done to allow time for the Avenue of Stars developer to complete their design plans for the plaza area, incorporating Metro's entrance. The owner has recently shared their final architectural plans with Metro and is ready to move forward. Construction of the owner's shoring work is scheduled to begin in Fall 2018, and Metro is continuing with utility relocation in the adjacent streets. See attachment A Spot Check #5 picture.

Budget - The award amount for this modification is \$1,258,310. The contractor's proposal was \$1,369,735 and the ICE was \$1,228,893. The award amount was \$111,425 below the contractor's proposal or 8.1% less than the contractor's price to complete the work. For this modification the negotiated amount was 2.4% above the ICE. Contractor's proposal, the ICE and the final negotiated amount were very close in price. See attachment A Spot Check #5 chart.

Schedule - The new delegation process was utilized for this modification. The agreed upon scope of work occurred on August 16, 2018 and the modification was executed on August 24, 2018, which was done in 7 work-days. If this modification were to go to the Board it would be on the October agenda which would be 51 work-days later. From the final scope of work to the October Board meeting there would be a time savings of 44 work-days. See attachment A Spot Check #5 chart.

Recommendation

The OIG understands the real estate transaction between the developer and Metro is not a signed agreement as of the time of this report. We recommend that Metro management and Metro real estate staff work expeditiously with the developer to finalize cost estimates and complete the real estate transaction to minimize the likelihood of additional costs associated with further modifications to the design of the station entrance.

FINANCIAL IMPACT

There is no financial impact to the agency.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The recommendations that the Office of Inspector General has put forward support the Strategic Plan Goal #5: Provide responsive, accountable, and trustworthy governance within the Metro organization. The OIG focuses on fraud, waste, and abuse. For each selected change order/modification reviewed, the OIG is evaluating if fraud, waste, or abuse is taking place. We report the details of why the change order is 'out of scope' and support the information with our construction best practices recommendations, more particularly focusing on lessons learned, improving efficiencies, and prudent spending. Our goal is to provide accountable, trustworthy information to the Board and through our recommendations provide governance to Metro.

NEXT STEPS

The Office of 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. The next OIG Construction Spot Check report will be in January.

Program Control and Program Management agreed to respond to the recommendations of the OIG found in this report within 30 days. We are working with Management for the responses to the prior OIG Construction Spot Check reports. Responses to our recommendations will be set forth in the January OIG Construction Change Order Spot Check Quarterly Report.

ATTACHMENTS

Attachment A - [Chart and Pictures for Spot Checks]

Prepared by: Prepared by: Suzanna Sterling, Construction Specialist Investigator, (213) 244-7368
Reviewed by: Karen Gorman, Inspector General, (213) 244-7337

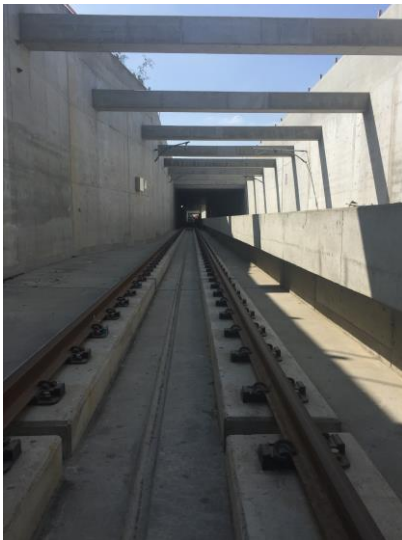


Karen Gorman
Inspector General

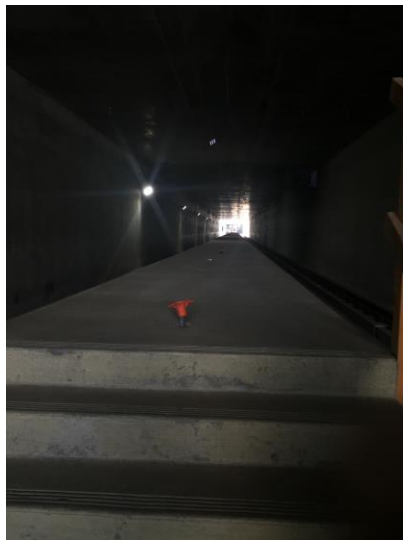
Spot Check #1 - Crenshaw/LAX Transit Project - Contract C0988

Facts of Change Order

<u>Description of Modification -MOD-000347.2:</u> Underground section 1(UG1) Center Walkway Lighted Handrail (supersedes MOD-000347 and 347.1)	
<u>Change Order Dates:</u>	
Scope of Work approved	August 16, 2018
Modification Executed	August 31, 2018
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	12 work days
Estimate using former Board approval process	51 work days
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$1,480,224
Contractor's proposed cost	\$1,669,709
Negotiated amount	\$1,600,000
Negotiated amount over ICE	\$119,776
Percentage of negotiated amount over ICE	8.1%



UG-1 - Tunnel section without the cover



Center walkway at UG-1
Area for lighted handrail, 4-inch wide thermoplastic edge striping, overhead lighting adjustments, power circuits, and redundant circuits



Spot Check #2 - Purple Line Section 1 Transit Project - Contract C1045**Facts of Change Order**

<u>Description of Modification -MOD-00060</u> Accommodate City of Beverly Hills Memorandum of Agreement (MOA)	
<u>Change Order Dates:</u>	
Scope of Work approved	June 19, 2018
Modification Executed	August 07, 2018
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	36 work days
Estimate using former Board approval process	75 work days
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$17,015,066
Contractor's proposed cost	\$20,828,391
Negotiated amount	\$18,993,374
Negotiated amount over ICE	\$1,978,308
Amount negotiated under Contractors proposal	\$1,835,017

Spot Check #3 - Purple Line Section 1 Transit Project - Contract C1045**Facts of Change Order**

<u>Description of Modification -MOD-00061</u> Additional SOE Design work for La Brea Station due to deviation request for building settlement	
<u>Change Order Dates:</u>	
Scope of Work approved	July 05, 2018
Modification Executed	August 01, 2018
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	20 work days
Estimate using former Board approval process	61 work days
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$1,208,883
Contractor's proposed cost	\$1,277,305
Negotiated amount	\$1,078,680
Negotiated amount under ICE	\$130,203
Amount negotiated under Contractors proposal	\$198,625

Spot Check# 4 - Purple Line Section 1 Transit Project - Contract C1045

Facts of Change Order

<u>Description of Modification -MOD-00058</u> La Brea Additional Instrumentation	
<u>Change Order Dates:</u>	
Scope of Work approved	April 16, 2018
Modification Executed	June 14, 2018
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	44 work days
Estimate using former Board approval process	54 work days
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$513,577
Contractor's proposed cost	\$5,877,106
Negotiated amount	\$1,386,678
Negotiated amount over ICE	\$873,101
Amount negotiated under Contractors proposal	\$4,490,428



Survey camera shoots signal and reads current elevation of street target



Street instrumentation target similar to lane marker but has an initial recorded elevation camera shoots signal to reflective prism



Solar powered instrumentation

Spot Check #4 - Purple Line Section 1 Transit Project
La Brea Additional Instrumentation

Spot Check #5 - Purple Line Section 2 Transit Project – Contract 1120**Facts of Change Order**

<u>Description of Modification -MOD-0015</u> Century City Constellation Station – Main Entrance Final Design	
<u>Change Order Dates:</u>	
Scope of Work approved	August 16, 2018
Modification Executed	August 24, 2018
<u>Elapsed Time for Executing Change Order:</u>	
Using new delegated process	7 work days
Estimate using former Board approval process	51 work days
<u>Cost of Change Order:</u>	
Metro independent cost estimate (ICE)	\$1,228,893
Contractor's proposed cost	\$1,369,735
Negotiated amount	\$1,258,310
Negotiated amount over ICE	\$29,417
Amount negotiated under Contractors proposal	\$111,425



Spot Check #5 - Purple Line Section 2 Transit Project
Century City Constellation Station – Main Entrance Final Design

Office Of Inspector General Construction Change Order Spot Check Report

Presented By

Karen Gorman

Inspector General

October 2018

Construction Committee

Los Angeles County Metropolitan Transportation Authority



Construction Spot Check Program

OIG Program Description

The OIG Spot Check program focuses on approved change orders that exceed \$1 million. The program includes:

- Review sampling of Change Orders from PMIS
- Review of Program Management's Project Status Report
- Interview Project Managers, Program Controllers, and Procurement Officers
- Review project budget, specifications, any related documentation

OIG Spot Checks focus on:

- Scope of Work
- Budget
- Schedule Comparison
- Making Recommendations

Summary of Spot Checks

Five OIG spot checks of change orders show:

- Negotiated amounts appear reasonable
- All change orders have a reduced processing time
- Staff time is saved

Construction Spot Check Costs

Summary of Selected Change Order Costs

Five OIG spot checks of change orders / modifications reported

1 change order for Crenshaw/LAX project

- ❖ Underground Section Center Walkway Lighted Handrail = \$1,600,000

3 change orders for Purple Line Section 1 project

- ❖ Accommodate City of Beverly Hills Memorandum of Agreement = \$18,993,347
- ❖ Additional support of excavation design work for La Brea Station due to deviation request for building settlement = \$1,078,680
- ❖ La Brea Additional Instrumentation = \$1,386,678

1 change orders for Purple Line Section 2 project

- ❖ Century City Constellation Station Main Entrance Final Design = \$1,258,310

Construction Spot Check Schedule Comparison

Schedule Comparison: New Delegated process vs. Former Board approval process

PROJECT	Title of Change Order	Time Saved Executed date to Board Mtg. (workdays)	NEW Delegated Process final SOW to Executed date (workdays)	Former Board Approval Process (workdays)
CRENSHAW/LAX	Underground Section Center Walkway Lighted Handrail	39	12	51
WESTSIDE PURPLE LINE SECT 1	Accommodate City of Beverly Hills Memorandum of Agreement	37	36	73
WESTSIDE PURPLE LINE SECT 1	Additional Support of Excavation Design Work for La Brea Station due to Deviation Request for Building Settlement	41	20	61
WESTSIDE PURPLE LINE SECT 1	La Brea Additional Instrumentation	10	44	54
WESTSIDE PURPLE LINE SECT 2	Century City Constellation Station Main Entrance Final Design	44	7	51





UG-1 - Tunnel section without the cover



Center walkway at UG-1. Area for lighted handrail, 4-inch wide thermoplastic edge striping, overhead lighting adjustments, power circuits, and redundant circuits



\$1,600,000

Purple Line Extension - Section 1 Transit Project

La Brea Additional Instrumentation

Spot Check #4



Survey camera shoots signal and reads current elevation of street target

Street instrumentation target similar to lane marker but has an initial recorded elevation camera shoots signal to reflective prism



Survey instruments measure settlement at La Brea Ave. & Wilshire Blvd.

Solar powered instrumentation



\$1,386,678

Purple Line Extension - Section 2:

Century City Constellation Station – Main Entrance Final Design

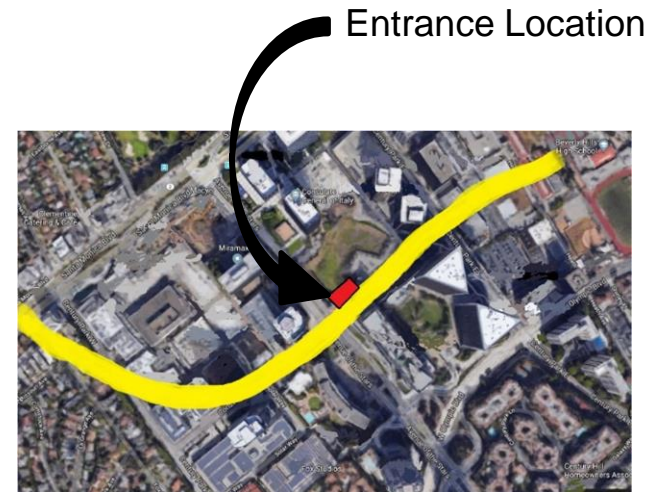
Spot Check #5

Agenda

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Entrance on the corner of Constellation Blvd. & Avenue of the Stars. Rendering from developers Architect.



Main Entrance to Metro Station

\$1,258,310

October 2018

Construction Committee

Los Angeles County Metropolitan Transportation Authority

