



Metro

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

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TO: BOARD OF DIRECTORS

THROUGH: ARTHUR T. LEAHY *AL*
CHIEF EXECUTIVE OFFICER

FROM: BRYAN PENNINGTON *BNP*
EXECUTIVE DIRECTOR, ENGINEERING AND CONSTRUCTION

**SUBJECT: DIVISION 13 BUS MAINTENANCE AND OPERATIONS FACILITY
CONTRACT C0974 McARTHUR BUILDING COMPANIES, INC.
UNDERGROUNDING THE LADWP ELECTRIC UTILITY POLES ON
CESAR CHAVEZ**

ISSUE

This report is to update the Metro Board of Directors on the status of the March 2013 Board Motion directing staff to underground the electric utility poles on Cesar Chavez for the Division 13 project.

DISCUSSION

Based on the March 2013 Board Motion, staff commenced undergrounding of the electrical utility in June 2013. The original schedule was approximately 120 days. Since then, undergrounding of electrical utility poles along Cesar Chavez has become a significant project issue. Differing site conditions such as underground obstructions, unclaimed utilities, voids, sandy soils and other difficult underground conditions resulted in schedule and budget impacts. Scheduled completion was expected in November 2013 but is now anticipated to be complete in April 2014. The original Metro budget estimate of approximately \$2.5 million to complete this work has increased to approximately \$4.9 million.

In the original contract, McCarthy's scope included the work to coordinate all LADWP power pole removal and electrical underground piping and vault installation. However, due to significant differing site conditions experienced during the Lyon Street utility

relocation, Metro staff proposed cancellation of LADWP power pole removal and electrical underground piping and vault installation to save project funds. In March 2013, the Metro Board issued a Motion directing staff to underground the electric utility poles on Cesar Chavez. In an effort to minimize impact to the Division 13 project schedule, Metro procured AT&T to perform the work in June 2013 and deleted this work from McCarthy. Metro's request for AT&T consisted of constructing a new underground pathway along Cesar Chavez Avenue and Vignes Street by taking the existing DWP electrical power cables on poles along Cesar Chavez and relocate the cables underground from Vignes to the Macy Street Viaduct then remove the wooden poles on the North side.

As background, Metro conducted extensive utility investigation including potholing, ground penetrating radar, Dig Alert, discussions with the City's Bureau of Engineering (BOE) and DWP. Based on this information, AT&T provided a cost estimate to complete this work for approximately \$1.1 million. Underground construction and utility work are largely complete with exception of DWP electrical undergrounding due to the following differing site conditions (see Attachment A):

- Pre-existing rail road tracks and wooden ties buried rail under the surface of the roadway. The majority of costs were for additional labor to remove rail, rail ties and spoils, as well as slurry to backfill the larger trench in the roadway.
- Multiple voids and subterranean wooden engineering structures apparently made to raise the tracks for the approach over the Macy Street Viaduct. The majority of costs were for digging to additional depth in order to contain and backfill with slurry to meet BOE standards: trenching, backfill with slurry, plating and retrenching.
- Extensive unknown utilities not shown on the City as-built drawings causing re-routing of trenches, dual trenches and deeper trenches. The majority of costs were for slow production rate per lineal foot of trench due to digging deeper and slower.
- Sandy soils and caving prompted LABOE to change the trenching process and procedures previously established, creating additional labor and material. Most significantly was that in order to keep public safety and the integrity of the roadway, trenching could only continue during full street closure (weeknights and weekends). Also Metro had to backfill the trenches where sandy soil and caving was present with slurry and then come back to retrench.

Unfortunately, most trenching work encountered sandy soils and caving, requiring over additional 1,000 yards of slurry to remediate caving and create a stable environment to continue trenching in order to place conduit. Sandy soils and caving alone doubled, and in some cases tripled, AT&T's labor and material costs. On several occasions, because of unknown underground obstructions, AT&T was unable to use mechanical equipment and had to manually remove the material from the trench with shovels and buckets.

Recently, AT&T also encountered more unknown underground obstructions including abandoned utility lines; some from the old Southern California Gas plant and other

unknown utilities above and below our trenching path. As a result, we were unable to place the conduit in the approved path and are now faced with cutting an additional trench to accommodate the duct package per DWP specifications.

In addition, significant traffic control was required for this effort. Approved traffic control plans delegated partial and full closures to weeknights and weekends, respectively. The delays have also significantly impacted the traffic control budget by extending the time period and almost quadrupling the original budget of approximately \$200,000 to an estimated \$800,000.

These differing site conditions have continued to delay the timely progress and completion of undergrounding the electric utility poles on Cesar Chavez as well as have significantly increased the costs above and beyond the original budget for this work, as follows in the table below.

LADWP ELECTRICAL UNDERGROUNDING BUDGET			
COMPANY	DESCRIPTION	FEE	
		Proposed	Current
AT&T	LADWP Infrastructure/Substructure	\$1.1M	\$2.7M
McCarthy/TMI	Traffic Control	Included	\$.8M
LADWP	Overhead and Underground Work	\$1M	\$1M
SCE	Telecommunication Relocation	\$.1M	\$.1M
Verizon	Pull and Splice Cable	\$.1M	\$.1M
TWC	Pull and Splice Cable	\$.1M	\$.1M
CES	Low Voltage	\$.1M	\$.1M
TOTAL		\$2.5M	\$4.9M

In the case for the electrical undergrounding, the Division 13 LOP budget has been significantly impacted to pay for the differing site conditions described above. In order to avoid field delays and incur further price increases, Metro staff proceeded to complete the work and cover the increased costs using the contingency budget in order to get power to the site by the required date of June 1, 2014. Once AT&T is complete with undergrounding the electrical utility, the exact costs for this task will be tabulated and communicated to the Board.

NEXT STEPS

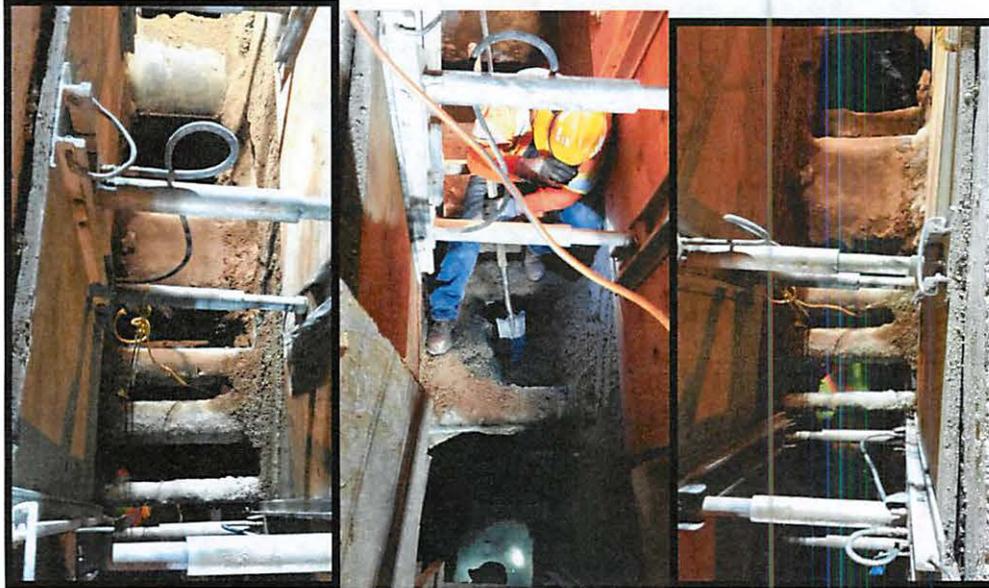
Upon completion of the undergrounding work anticipated in April 2014, Metro staff will tabulate all of the additional direct and indirect costs related to all of the utility relocations, including the previously reported Vignes sewer line issue and the undergrounding of the electric utility poles on Cesar Chavez, to determine the full impact to the Division 13 LOP budget.

In regards to the Vignes sewer line, staff updated the Board in October 2013 that establishing a new utility corridor on Vignes Street was more challenging than anticipated due to various and significant underground obstructions. The proposed sewer connection through the Cesar Chavez/Vignes intersection had to be redesigned on several occasions and could not be completed through typical direct trenching and eventually required a tunneling method. The new utility corridor alone delayed the project by 97 calendar days. Costs for this issue are still being negotiated and quantified.

Once we have determined the full extent of these two impacts to the schedule and budget, currently expected be on or before June 2014, staff will present to the Board a total cost for underground utility work for Division 13. This report will most likely include a request for additional LOP budget to cover costs for these issues.

ATTACHMENT A

Construction Photographs



Potential caving required extensive shoring, limiting mechanical equipment within trench and requiring hand digging.



Underground obstructions including unknown and unused utility infrastructure limited mechanical equipment within the trench.



Sandy soils required trench to be exposed and backfilled with slurry in order to stabilize the trench path.



The voids consisted of a set of streetcar tracks overlying a subterranean wooden engineering structure apparently made to raise the tracks on their approach to the Macy Street Viaduct.