

**SPECIAL EXPERIMENTAL PROJECT NO. 14 (SEP-14)**  
**FINAL EVALUATION REPORT**  
**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**  
**290 EAST TOLL PROJECT**

**A. Introduction**

The Central Texas Regional Mobility Authority (Mobility Authority) submits this final report under the provisions of Special Experimental Project No. 14 (SEP-14) for the use of innovative contracting practices on the 290 East Toll Project.

**B. History**

The original request for SEP-14 approval and associated work plan were transmitted by the Mobility Authority to the Federal Highway Administration (FHWA) in a letter dated April 20, 2009; a copy of that transmittal is available on the FHWA website at the following link: <http://www.fhwa.dot.gov/programadmin/contracts/sep14tx2009.cfm>. FHWA issued their approval of the Mobility Authority's request in a letter dated April 28, 2009.

The approved request contemplated the use of experimental features on the 290 East Toll Project corridor, a proposed 6.2 mile toll facility extending from US 183 (western terminus) to SH 130 (eastern terminus) in Travis County, Texas. The proposed improvements include 3 grade-separated tolled lanes and 3-lane, non-tolled frontage roads (with at-grade intersections at cross-streets) in each direction. Additionally, four direct connectors at the US 290/US 183 interchange will be constructed as part of the corridor.

To maximize expediency and flexibility in the implementation of the 290 East Toll Project corridor at the time of the SEP-14 request, the Mobility Authority utilized a phased project implementation approach that advanced the 290 East Toll Project corridor in three geographically distinct segments, as follows:

- Segment 1 – Four direct connectors at the US 290/US 183 interchange.
- Segment 2 – From US 183 to FM 3177 (Decker Lane)
- Segment 3 – From FM 3177 (Decker Lane) to east of SH 130 (near FM 734)

The use of this approach was driven by the fact that the implementation schedules for these Segments varied based on the availability of existing right-of-way, completion of utility relocations, and funding accessibility.

The approved SEP-14 request included two experimental project features, summarized as follows:

- Use of Lump Sum Bidding: The bidders will be provided with a set of bid documents including plans, specifications, and quantity estimates. The bidders will be required to develop a unit price bid for the work that will be converted to a lump sum price for the selected contractor. Additionally, the project will utilize a revenue loaded schedule, based on the lump sum price, for payment applications which will also serve to reduce the oversight costs associated with measuring quantities for payment.
- Use of a No-Excuse Bonus: The Mobility Authority will give the contractor two contract dates for substantial completion of the work. If the work is completed in advance of the earlier date, the contractor will receive a bonus. There are no excuses such as weather delays that may be claimed for not meeting the earlier completion date. On the other hand, there are no disincentives (other than normal liquidated damages) for not meeting the later completion date.

### C. Purpose

The primary purposes/objectives for the use of the Lump Sum Bidding feature were as follows:

- **Provide the Mobility Authority and its investors with greater cost certainty for the project.** This objective would be met by transferring a portion of the risk of quantities to the contractor such that variances between plan quantities and as-built quantities, except for significant changes as defined in the contract, would not result in a contract value change.
- **Ensure that bid prices are reasonable and not unduly increased due to a disproportional amount of risk placed on the Contractor.** While it is acknowledged that the quantities risk was transferred to the contractor, it was the Mobility Authority's intent to ensure that this risk was limited on those construction elements that typically varied widely from plan/design quantities [such as embankment, excavation, flexible base, and drill shaft foundations].

The primary purpose for the use of a No-Excuse Bonus feature was as follows:

- **Provide the Mobility Authority and its investors with greater schedule certainty for the project** by increasing the probability of early or on-time completion through contractor incentives.

### D. Scope

#### Originally Anticipated / Approved:

The original SEP-14 request approved by FHWA intended to utilize the two experimental project features on the entire 290 East Toll Project corridor, including all three Segments.

#### Actual:

Prior to the receipt of the SEP-14 approval and as the 290 East Toll Project corridor was advanced to construction, the Mobility Authority, in conjunction with the Capital Area Metropolitan Planning Organization and the Texas Department of Transportation Austin District, was granted "stimulus" funds under the American Recovery and Reinvestment Act of 2009 (ARRA) to implement Segment 1 as a stand-alone project. Given that the defined ARRA budget amount did not contemplate or include a bonus amount, **the Mobility Authority elected to use only the Lump Sum Bidding feature on the Segment 1 implementation.**

Additionally, based on the identification of a complete project financing plan, the Mobility Authority elected to implement Segments 2 and 3 as a single project using a standard Design/Build model. In that regard, **the Mobility Authority did not use either of the Lump Sum Bidding or No-Excuse Bonus features on Segment 2 or Segment 3.**

## E. Findings

As stated above, the Lump Sum Bidding feature had two purposes/objectives including greater cost certainty and reasonable bid prices. The Mobility Authority has assessed the 290 East Toll Project Corridor Segment 1 to determine the extent to which these were achieved. The findings of our assessment are summarized as follows:

### 1. Greater Cost Certainty:

The final construction contract cost figures are summarized in Table 1 below:

**TABLE 1: 290 EAST TOLL PROJECT CORRIDOR SEGMENT 1 // FINAL CONSTRUCTION CONTRACT COST SUMMARY**

COST ELEMENT	AMOUNT	REMARKS
<b>ORIGINAL CONSTRUCTION CONTRACT TOTAL</b>	<b>\$ 52,575,545.77</b>	
<b>Construction Contract Cost Adjustments (Additional Quantities)</b>		
Special Measurement Items	\$ 432,547.11	Predominately related to drilled shaft over-runs. <sup>1</sup>
<b>Sub-total</b>	<b>\$ 432,547.11</b>	<b>Represents a 0.82% increase from Original Construction Contract Total.</b>
<b>Construction Contract Cost Adjustments (Scope)<sup>2</sup></b>		
Owner Directed Changes	\$ 875,261.62	
Partnering	\$ 10,000.00	
Design Plan Error & Omission	\$ 84,247.76	
Lane Rentals & Peace Officers	\$ (270,938.44)	
Hot-Mix Asphaltic Concrete (HMAC) Bonus	\$ 69,195.07	
<b>Sub-total</b>	<b>\$ 767,766.01</b>	<b>Represents a 1.46% increase from Original Construction Contract Total.</b>
<b>Construction Contract Cost Adjustments (Contractual Terms)<sup>2</sup></b>		
Liquidated Damages	\$ (160,000.00)	Substantial Completion: 16 days @ \$10k each.
Liquidated Damages	\$ (2,316,000.00)	Final Acceptance: 193 days @ \$12k each.
Contractor Settlement	\$ (75,000.00)	Negotiated settlement amount re: iron ore staining.
<b>Sub-total</b>	<b>\$ (2,551,000.00)</b>	<b>Represents a 4.85% decrease from Original Construction Contract Total.</b>
<b>FINAL CONSTRUCTION CONTRACT TOTAL</b>	<b>\$ 51,224,858.89</b>	<b>Represents a 2.57% decrease from Original Construction Contract Amount Total.</b>
<b>Footnotes:</b>		
<sup>1</sup> 91.4% of the Special Measurement Items total was associated with drilled shaft over-runs.		
<sup>2</sup> A summary of all executed Change Orders on the project is contained in Attachment A to this report.		

The final construction contract total was increased by only 0.82% due to quantity variations [plan quantities vs. as-built quantities], which is considered to be quite small in relation to standard design-bid-build projects which typically experience larger increased costs due to measured quantities.

It is understood that the other cost adjustments related to Scope and Contractual Terms are independent of the Lump Sum Bidding feature, as these costs would have also been incurred on a standard design-bid-build project.

Given the relatively small increase in the final construction contract total due to quantity variations, it is the Mobility Authority's assessment that the cost certainty purpose/objective was achieved.

2. Reasonable Bid Prices:

The bids received for the project, as well as information relating the Engineers' Estimate to same, are summarized in the Table 2 below:

TABLE 2: 290 EAST TOLL PROJECT CORRIDOR SEGMENT 1 // ENGINEER'S ESTIMATE VS. BIDS RECEIVED				
COST ELEMENT	AMOUNT	DIFFERENTIAL FROM ENGINEER'S ESTIMATE	DIFFERENTIAL FROM LOW BID	DIFFERENTIAL FROM AVERAGE BID
Engineer's Estimate	\$ 75,021,796.00			
<b>Bids Received</b>				
W.W. Webber, LLC [Low Bidder]	\$ 52,575,545.77	-29.92%	0.00%	-8.09%
Williams Brothers Construction Co., Inc.	\$ 55,150,388.07	-26.49%	4.90%	-3.59%
Austin Bridge & Road, LP	\$ 56,791,117.56	-24.30%	8.02%	-0.72%
Balfour Beatty Infrastructure, Inc.	\$ 57,408,554.95	-23.48%	9.19%	0.36%
SEMA Construction Group, LLC	\$ 57,411,909.19	-23.47%	9.20%	0.37%
J.D. Abrams, LP	\$ 63,871,053.52	-14.86%	21.48%	11.66%
<b>Average Bid</b>	<b>\$ 57,201,428.18</b>	<b>-23.75%</b>		

It is immediately noted that all of the bids received were substantially lower than the Engineer's Estimate, with the low bid being 29.9% below the anticipated figure. This issue, as fully explained in the report entitled *Bid Evaluation Report - 290E Toll Project Direct Connectors at US 183, December 7, 2009* [included in Attachment B to this report], was a common occurrence at the time bids were received on the project. Per the referenced report, a review of the locally let projects at the time of this bidding phase confirmed that the economic slowdown and reduction in highway spending had affected bidding in the entire Central Texas region. A review of projects with Engineer's Estimates greater than \$1,000,000 which were let in the Austin District between April 2009 and October 2009 indicated that the low bids were, on average, 30.6% below the Engineer's Estimate. In that regard, the reduced nature of the bids was consistent with the contracting environment at the time.

Given that all of the bids received for the subject project were well below the Engineer's Estimate, and given that they were all clustered relatively close to the average bid, it is the Mobility Authority's assessment that the reasonable bid pricing purpose/objective was achieved.

**F. Lessons Learned**

There were three notable items identified during the project implementation related to the Lump Sum Bidding feature which can be categorized as "lessons learned", as follows:

1. Risk Transfer of Quantities to the Contractor:

This concept worked generally well in terms of alleviating claims against overrun of plan quantities. Change orders for over/underruns of existing contract items were limited to changes in the work, whether by addition or deletion.

2. Communicating Specifics of "Lump Sum" Bidding Concept:

As noted above, the Lump Sum Bidding feature did achieve the intended objective of price certainty for variation of quantities [from plan quantities to actual quantities]. However, as is the case with all projects, there were other legitimate project factors, some of which were anticipated at the outset of the project, which led to an increased construction contract price total. As summarized in Table 1, there were additional costs associated with certain owner directed changes, partnering, a design plan error & omission, peace officers, and a hot-mix asphaltic concrete (HMAC) bonus. While all of the aforementioned items were fully contemplated in the original construction contract and the administration of same fully adhered to the contract specifications, the fact that there were increases to the overall

construction contract price did lead to questions and discussions regarding how this could occur under a "Lump Sum" scenario.

In the event that the Mobility Authority utilizes this Lump Sum Bidding feature again on a future project, staff will more thoroughly communicate the specific purpose(s) of this feature and its limitations in regard to owner directed changes, partnering, and other anticipated contract modifications that are likely to occur. Additionally, the term "Lump Sum" will be replaced with a more applicable phrase intended to reduce possible confusion related to additional costs.

3. Revenue Loaded Schedule for Payment Application:

The concept is good and has merit as an industry best practice. However, special attention needs to be paid to how the schedule is loaded. The schedule needs to provide an adequate level of detail in the type and number of activities to be able to accurately track the revenue. If the contractor loads too many cost items into a single activity, it's nearly impossible to accurately assess the progress of each of those items within the single activity. For example, on Segment 1, the contractor used the single activity "seeding" to incorporate temporary seeding, permanent seeding, vegetative watering, soil retention blankets, and brick pavers all as one item for payment. This made it difficult to approve progress for this particular activity when the respective components were all at various levels of progress.

## G. Summary

The use of the Lump Sum Bidding feature was successful in meeting the Mobility Authority's intended purposes/objectives in that it did provide cost certainty while not causing bid prices to be unreasonable. It is the Mobility Authority's intent to maintain this feature as a viable implementation method for potential use on future projects, with alterations to said method to address the items contained in the lessons learned section of this report.

### Attachments (2)

Attachment A. Change Order Summary

Attachment B. *Bid Evaluation Report - 290E Toll Project Direct Connectors at US 183, December 7, 2009*