

**SUPPLEMENTAL AGREEMENT NO. 5
TO
AGREEMENT OF May 18, 2011
FOR
ENGINEERING SERVICES for
Fort Bend Grand Parkway Toll Road, Segment D**

This Supplemental Agreement is made and entered into this 15th day of August, 2012, and modifies the ENGINEERING SERVICES AGREEMENT between Fort Bend Grand Parkway Toll Road Authority and TEDSI Infrastructure Group, Inc., dated May 18, 2011 for engineering services for the Fort Bend Grand Parkway Toll Road, Segment D.

The agreement is hereby modified as follows:

1. The first sentence of Section 2.a is replaced with the following sentence:

“The Maximum Compensation under this contract is \$655,999.66.”

2. The second paragraph of Section 2.a is replaced with the following paragraph:

“Compensation for performance of services within the Scope of Services described in Attachment A will be as follows: The lump sum compensation shall be increased by \$18,156.77. for the additional work shown in Attachment A. The maximum amount payable under this agreement shall not exceed \$655,999.66, as shown in Attachment B. Progress payments for work detailed in Attachment A will be made when the Engineer has attained a level of completion equal to or greater than the agreed upon milestones of completion in the reasonable opinion of FBGPTRA.”

3. Section 3 is replaced with the following paragraph:

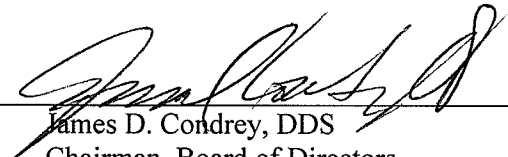
“It is understood and agreed that the time for performance of the Engineer’s services under this Agreement shall begin with receipt of the Notice to Proceed and end on February 1, 2014. Notwithstanding the above, the time for performance of the Engineer’s services set forth in Exhibit A-5 shall begin with receipt of the Notice to Proceed and end on November 12, 2012.”

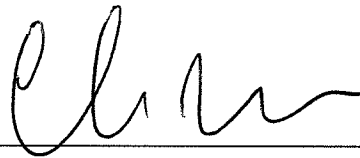
4. The Scope of Services shown in Attachment A shall be expanded to include Exhibit A-5, attached hereto.
5. The Compensation for Scope of Services shown in Attachment B shall be expanded to include Exhibit B-5, attached hereto.

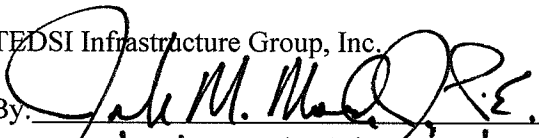
[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, this Supplemental Agreement is hereby executed as of the date first set forth above.

FORT BEND GRAND PARKWAY TOLL ROAD
AUTHORITY

By: 
James D. Condrey, DDS
Chairman, Board of Directors

ATTEST: 
By _____

TEDSI Infrastructure Group, Inc.
By: 
Name: Jules M. Morris, Jr., P.E.
Title: Vice President

**EXHIBIT A-5
ATTACHMENT A
SUPPLEMENTAL AGREEMENT NO. 5
ADDITIONAL SCOPE OF SERVICES**

FORT BEND GRAND PARKWAY TOLL ROAD AUTHORITY

GENERAL:

The intent of the work scope contained herein is to review existing weekday traffic conditions at SH 99/Grand Parkway at FM 1093 and FM 1093 at Katy-Gaston Road in Fort Bend County, to collect traffic count data, to develop optimized traffic signal timing plans, and to implement these new timing plans into the existing traffic signal controller onsite in the field.

TRAFFIC SIGNAL TIMING ENGINEERING ANALYSIS:

TEDSI shall perform services as listed to conduct complete weekday traffic signal timing services at SH 99/Grand Parkway at FM 1093 and FM 1093 at Katy-Gaston Road.

1 Project Coordination

TEDSI shall coordinate with the Fort Bend Grand Parkway Toll Road Authority (FBGPTRA) for all project related matters.

2 Data Collection

TEDSI shall conduct site inspection at the two (2) study locations. The field work may include but not limited to taking digital photographs (minimum of two per approach), verifying existing signal timing and documenting any discrepancies and any other issues regarding the operation and safety of the intersection which TEDSI considers might be important.

TEDSI shall collect 12-hour (6:30 AM to 6:30 PM) turning movement count (TMC) data at the study intersections on a typical weekday. The peak periods and peak hour factors should be determined using turning movement volume data collected above. TEDSI shall present the peak hour turning movement data in a map format in addition to the tabular TMC summary.

TEDSI shall obtain existing signal timing data of the two (2) study intersections from the FBGPTRA. TEDSI will review the existing phasing and timing sheets, the clearance intervals to be used and the pedestrian walk and don't walk time for the study intersection.

Intersection related traffic crash reports and existing intersection condition diagrams will not be required for this study.

3 Traffic Engineering Analysis

TEDSI shall perform Synchro capacity analysis at each study intersection to evaluate existing timings and to determine existing Level of Service (LOS). TEDSI will perform Synchro optimization analysis using the existing volumes to determine if coordination relationship should be desired between the studied intersections. TEDSI shall determine the best cycle length for each peak period if coordination is required. TEDSI will summarize these results in a tabular and graphical format.

For traffic signal timing of SH 99/Grand Parkway at FM 1093, TEDSI shall perform Synchro optimization analysis using current traffic volumes for two (2) potential alternative scenarios under existing intersection geometry:

- traffic signal phase splits and cycle optimization under existing phasing sequences;
- potential traffic signal phasing sequences, phase splits, and cycle optimization

TEDSI shall summarize the results in a tabular format and provide recommendations to the FBGPTRA.

TEDSI shall generate the time space diagrams for the weekday morning, midday, and afternoon peak periods along FM 1093. TEDSI shall submit the generated timing plans and time space diagrams to the FBGPTRA for review. TEDSI shall incorporate appropriate revisions into the timing plans and shall submit the revised timing plans to the FBGPTRA along with a Preliminary Report. TEDSI will submit controller timing sheets that are appropriate for the controller manufacturer.

4 Preliminary Report

TEDSI shall summarize the data collection and engineering analysis results in a Preliminary Report and submit this report to the FBGPTRA for review. TEDSI will submit one (1) copy of the signal timing plans - splits and offsets - in a tabular form to the FBGPTRA. The Preliminary Report may be submitted as a hardcopy. Alternatively, the Preliminary Report may be submitted by e-mail in PDF format.

5 Implementation

Once the optimized signal timing plans have been reviewed and approved by the FBGPTRA, TEDSI will implement new timings of SH 99/Grand Parkway at FM 1093 in the field, make any appropriate recommendations and respond to questions. TEDSI shall notify the FBGPTRA of time of the field implementation in advance and report to the FBGPTRA of actual duration and any findings / issues of the field implementation via Email.

The optimized signal timings of FM 1093 at Katy-Gaston Road will be submitted to the Texas Department of Transportation Houston District (TxDOT) after review and approval by the FBGPTRA and the TxDOT. Field implementation of the optimized timing at this intersection may not be included in this scope. If it is determined by the FBGPTRA and the TxDOT that the optimized timing will be field implemented by TEDSI, additional budget as shown in the "Attachment 'B-1' Fee Schedule/Budget" shall be required.

When the new timing plans are operational, TEDSI will provide qualified engineers for minor on-site fine-tuning assistance, up to 2 separate site visits. During the course of this assistance, TEDSI will observe the actual operation of the new timing plans and recommend minor field adjustments to improve traffic operations.

After field implementation of the timing, along with possible fine tuning, TEDSI shall submit:

1. Two hard copies of the Final Report incorporating any necessary revisions due to review comments from the FBGPTRA;
2. One CD-ROM containing the final report, all technical data, including Synchro runs.

**EXHIBIT B-5
ATTACHMENT B
SUPPLEMENTAL AGREEMENT NO. 5
ADDITIONAL SCOPE OF SERVICES**

FORT BEND GRAND PARKWAY TOLL ROAD AUTHORITY

TRAFFIC SIGNAL TIMING ENGINEERING ANALYSIS

ATTACHMENT "B"

Fee Schedule/Budget
Method of Pay: Specified Rate

Traffic Signal Timing Study - SH 99/Grand Parkway at FM 1093 and FM 1093 at Katy-Gaston Road

Classification	Project Manager	Project Designer	CADD Tech	Engr Assistant	Project Admin	Total Man-Hours	Cost
Direct Labor Rate	\$156.59	\$122.85	\$88.74	\$76.76	\$80.60		
TASK							
Project Administration & Coordination	6				2	8	\$1,100.74
Observe Traffic Operations, Field Meeting, Inventory & Pictures		4		12		16	\$1,412.52
TMC data collection		2		36		38	\$3,009.06
Perform Simulation & Optimization Timing Analysis		40				40	\$4,914.00
Submit Preliminary Signal Timing Plans to FBGPTRA for Review & Comments		3		3		6	\$598.83
Submit Preliminary Report along with Revised Signal Timing Plan to FBGPTRA for Review and Comments		8		8		16	\$1,596.88
Field Implementation of Signal Timing into Controllers + Fine Tuning (SH 99 at FM 1093)		18				18	\$2,211.30
Submit Final Report and All Required Deliverables		6	2	6		14	\$1,375.14
Total Man-Hours	6	81	2	65	2	156	
Percent of Total Labor	3.85%	51.92%	1.28%	41.67%	1.28%	100.00%	
Total Cost							\$16,218.47
Reimbursable Costs							
Vehicle Mileage @ Current State Rate (\$0.555/mi)					120	mile	\$66.60
Toll Charges @ \$1.50/ea (Receipt Required)					5	each	\$7.50
Photocopies B/W (8X10) @ \$0.10/ea.					300	each	\$30.00
Photocopies Color (8X10) @ \$1.00/ea.					300	each	\$300.00
envelopes/Overnight Mail - Oversized Box @ \$30/ea. (Receipt Required)					2	each	\$60.00
Total Reimbursable Cost							\$464.10
Total Labor & Reimbursable Costs							\$16,682.57

ATTACHMENT "B-1"
 Fee Schedule/Budget
 Method of Pay: Specified Rate

Traffic Signal Timing Study - SH 99/Grand Parkway at FM 1093 and FM 1093 at Katy-Gaston Road

Classification	Project Manager	Project Designer	CADD Tech	Engr Assistant	Project Admin	Total Man-Hours	Cost
Direct Labor Rate	\$156.59	\$122.85	\$88.74	\$76.76	\$80.60		
TASK							
Field Implementation of Signal Timing into Controllers + Fine Tuning (FM 1093 at Katy-Gaston Road)		12				12	\$1,474.20
Total Man-Hours	0	12	0	0	0	12	
Percent of Total Labor	-	100.00%	-	-	-	100.00%	
Total Cost							\$1,474.20
Reimbursable Costs						Units	Cost
Vehicle Mileage @ Current State Rate (\$0.555/mi)						mile	\$0.00
Toll Charges @ \$1.50/ea (Receipt Required)						each	\$0.00
Photocopies B/W (8X10) @ \$0.10/ea.						each	\$0.00
Photocopies Color (8X10) @ \$1.00/ea.						each	\$0.00
envelopes/Overnight Mail - Oversized Box @ \$30/ea. (Receipt Required)						each	\$0.00
Total Reimbursable Cost							\$0.00
Total Labor & Reimbursable Costs							\$1,474.20