

**APRIL 27, 2011 CTRMA BOARD OF DIRECTORS MEETING
Summary Sheet**

AGENDA ITEM # 7

Approve a contract amendment with Telvent USA Corporation to revise the scope of services and implementation schedule and authorize additional payment for work related to installation of toll collection and intelligent transportation system equipment on the Manor Expressway, and under the amended contract approve Work Authorization #6 for work related to the Manor Expressway.

Department: Operations

**Associated Costs: \$6,546,868 (Adjusted Based Contract Maximum)
 \$7,741,122.51 (Work Authorization No. 6)**

Funding Source: Bond Sale Funds

Board Action Required: Yes

Description of Matter:

Amendment to Base Contract

In April 2005, the CTRMA entered into a Contract for Toll System Implementation with Caseta Technologies, Inc. for the design, installation, and maintenance of a toll collection system for the CTRMA Turnpike System. The original agreement was for an initial five (5) year term, with the option to renew for an additional three (3) years upon mutual consent of the parties. The initial term expired on April 26, 2010, and renewal of the agreement for an additional three (3) year term, approved with Resolution 10-27 on March 31, 2010, extends the term to expire April 26, 2013.

Telvent USA Corporation (formally Caseta Technologies, Inc.) has been responsible for the design, procurement, installation, operation, and maintenance of the entire toll collection system for the 183A Turnpike Project. Telvent USA Corporation has provided the services required by the Contract very effectively, and the toll collection system has performed well. Separate Work Authorizations have been prepared providing for the expansion of the toll collection system to include the 183A Phase II Expansion Project and the US290 East (Manor Expressway) Project under the terms of the existing master agreement. The installation of the 183A- Phase II expansion has been previously approved by the Board.

Work Authorization No. 6

This current Work Authorization No. 6 provides for the design, procurement, installation, and testing of the complete and functioning toll collection system and traffic management

system for the Manor Expressway project from US 183 to just east of SH 130. The work also includes coordination with a) the roadway construction contractor on the Manor Expressway Direct Connectors at US 183 project and b) and the Comprehensive Development Agreement developer team responsible for the design and construction of the Manor Expressway from US 183 to east of SH 130. The work also includes interfacing with the communications systems linking the project system to the Mobility Authority's central control systems.

Based on the review of the proposed Work Authorization by Mobility Authority staff and the GEC, it was determined that the Scope of Services addresses the anticipated project requirements and the level of effort and the associated fee is appropriate. Therefore, Approval of Work Authorization #6 is recommended.

Since the anticipated completion of the Manor Expressway has been established for late 2014, and staff believes that it is imperative that the CTRMA experience a continuity of services from its Toll Systems Integrator to ensure the effective completion and testing of the toll collection system, it is additionally recommended that the Contract with Telvent be extended to expire 365 days after the Manor Expressway/290E Project attains Substantial Completion.

Attached documentation for reference:

Draft Amendment to Contract
Draft Work Authorization No. 6

Contact for further information:

Tim Reilly, Director of Operations

CONTRACT FOR TOLL SYSTEM IMPLEMENTATION
with
Telvent USA Corporation

Base Contract Maximum Fee Adjustment Worksheet

Base Contract Maximum Authorized Amount \$16,012,596.00

Work Authorizations Approved to Date:

W.A. No. 1 (183A-Ph I)	\$9,243,751.55
W.A. No. 2 (Project Coordination)	\$225,290.00
W.A. No. 3 (Test Facility)	\$406,674.68
W.A. No. 4 (CCRMA)	\$1,577,089.00
<u>W.A. No. 5 (183A-Ph II)</u>	<u>\$3,365,536.00</u>

Approved W.A. Sub-Total **(\$14,818,341.23)**

Remaining Available Base Contract Amount \$1,194,254.77

Requested W.A. No. 6 (Manor Expressway) (\$7,741,122.51)

Requested Base Contract Adjustment \$6,546,867.74

**GENERAL MEETING OF THE BOARD OF DIRECTORS
OF THE
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

RESOLUTION NO. 11-__

Approve a Contract Amendment with Telvent USA Corporation to Revise the Scope of Services and Implementation Schedule and Authorize Additional Payment for Work Related to Installation of Toll Collection and Intelligent Transportation System Equipment on the Manor Expressway, and Under the Amended Contract Approve Work Authorization #6 for Work Related to the Manor Expressway.

WHEREAS, the Central Texas Regional Mobility Authority (the "Authority") entered into a contract with Caseta Technologies, Inc. dated April 27, 2005, for the design, procurement, and installation of a toll collection system on the Authority's turnpike system (the "Contract"); and

WHEREAS, Caseta Technologies, Inc., was subsequently acquired by Telvent USA Corporation, a Maryland corporation ("Telvent"), and all rights and obligations of Caseta Technologies, Inc. under the Contract are now the rights and obligations of Telvent; and

WHEREAS, the initial term of the Contract originally expired on April 26, 2010; and

WHEREAS, in Resolution 10-27, dated March 31, 2010, the Board of Directors approved the renewal of the Agreement for an additional three (3) year period to extend from April 26, 2010 until April 26, 2013; and

WHEREAS, the CTRMA is currently pursuing the development of the 290 East Toll Project (the Manor Expressway), and anticipates that the Manor Expressway will be completed in early 2016; and

WHEREAS, Telvent is providing toll system implementation services for the Manor Expressway under the Contract; and

WHEREAS, staff recommends that the Contract with Telvent remain in effect until all work on the Manor Expressway is complete in order to provide continuity of toll implementation services for the project and to ensure the effective completion and testing of the toll collection system; and

WHEREAS, staff also recommends making certain amendments to the existing scope of services under the Contract and increasing the total contract price to reflect the work required in connection with the Manor Expressway.

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors hereby approves the Amendment to the Contract with Telvent in the form or substantially the same form as Attachment "A"; and

BE IT FURTHER RESOLVED, that the Amendment, the Work Authorization #6 in the form or substantially the same form as shown on Attachment "B" to this Resolution, and further change orders or other documentation necessary to give effect to the Amendment may be finalized and executed by the Executive Director on behalf of the Authority.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27th day of April, 2011.

Submitted and reviewed by:

Approved:

Andrew Martin
General Counsel for the Central
Texas Regional Mobility Authority

Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number 11-
Date Passed 4/27/11

ATTACHMENT "A" TO RESOLUTION 11-

**DRAFT AMENDMENT TO CONTRACT FOR TOLL SYSTEM IMPLEMENTATION
BETWEEN CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY
AND
TELVENT USA CORPORATION**

[Following 11 Pages]

ATTACHMENT "B" TO RESOLUTION 11-

Draft Work Authorization #6

[Following 19 Pages]

**AMENDMENT TO CONTRACT FOR TOLL SYSTEM IMPLEMENTATION
BETWEEN CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY
AND
TELVENT USA CORPORATION**

This Amendment to the Contract for Toll System Implementation between Central Texas Regional Mobility Authority (“CTRMA”) and Telvent USA Corporation (the “Contractor”) is made effective as of the ___ day of May, 2011, and is for the purpose of amending Section 13, Attachment B, and Schedule 1 of the Contract for Toll System Implementation between CTRMA and Contractor effective April 27, 2005 (the “Contract”).

Pursuant to action of the CTRMA Board of Directors, reflected in Resolution No. 11-___, dated April 27, 2011, Section 13, Attachment B, and Schedule 1 of the Contract are amended as described below.

Section 13 is amended to read as follows:

13. TERM OF CONTRACT. Unless otherwise terminated pursuant to Article 15 of Attachment A, the initial term of this Toll Systems Implementation Contract shall expire upon the later of April 26, 2013 or 365 days after substantial completion of the Manor Expressway/290E Project.

Sections B2.01, B2.07, B3.02, and B3.03 of Attachment B are amended to read as follows:

B2.01. 183-A Turnpike: San Gabriel to SH 45 North

The 183-A Turnpike Project is located in Williamson County, extending from RM 620/SH45, south of the City of Cedar Park, to the South San Gabriel River approximately three miles north of the City of Leander. The corridor is approximately 11.6 miles in length and includes connection to RM 620/ SH 45, local road networks, and the existing U.S. 183. The southern terminus for the Project coincides with improvements to upgrade U.S 183 and the RM 620/SH 45 interchange implemented by TxDOT and referred to as Section 9.

The 183-A Project is being developed in phases. The Interim Build Phase, which was constructed under a design/build Comprehensive Development Agreement (CDA), consists of a six-lane mainlane roadway (3 NB and 3 SB) and ramps from the southern terminus of the Project at RM 620/SH 45 to just north of FM 1431. From north of FM 1431 to the South San Gabriel River, only the frontage roads were constructed. A conventional mainlane toll plaza, consisting of six (6) toll lanes is located at Park Street, there are two 3-lanes ramps at the Lakeline locations and two, 2-lane ramp plazas are located on the ramps at Brushy Creek Road.

Phase II of the 183-A Turnpike Project extends the mainlanes from FM 1431 to north of RM 2243, a distance of approximately 5.1 miles. The Project, which is being constructed

under a traditional construction contract, is being constructed between the frontage roads and will consist of three lanes in each direction with access ramps connecting to the frontage roads.

The Final Build Phase, which will be constructed in the future under a separate agreement, will add mainlane roadways, ramps, and toll facilities from north of RM 2243 to South San Gabriel River. Construction of the full build-out of the Final Build Phase will be implemented as traffic conditions warrant and funding becomes available.

B2.07. US 290 E: US 183 to SH 130

The US 290 East Project consists of the construction of six main lanes and three lane frontage roads approximately 6.2 miles long, from US 183 to east of SH 130. The construction begins at US 183 and ends east of SH 130. The Project also includes four direct connectors at the US 183 interchange. All-ETC facilities are anticipated.

B3.02. 183-A Turnpike: San Gabriel to SH 45 North

The 183-A Turnpike Project initially was operated with a combination of manual, automated coin collection, and electronic (ETC) modes of toll collection. The Project was converted to all-ETC in December 2008. Violation enforcement equipment is installed in all lanes, and the CTRMA pursues violators in accordance with established CTRMA policies, as well as Chapter 370 of the Texas Transportation Code.

There are two main toll collection areas on the 183-A Turnpike. An all ETC system is installed on the mainline roadways in Section 9. A conventional mainline barrier toll plaza, together with a Field Operations Building, is located at Park Street. Offices for administrative, management, and supervisory personnel are located in a Field Operations Building adjacent to the mainline toll plaza at Park Street.

The mainline barrier toll plaza at Park Street initially was configured to transition from the typical section to ETC/AVI lanes and cash collection lanes. The ETC only lanes were located in the center of the plaza, and cash customers exited from the right lane when approaching the toll plaza to use conventional toll lanes equipped with both electronic and manually operated toll equipment. The 183-A Project was converted to all-ETC in December 2008. The all-ETC system consists of only a gantry over the mainline roadways.

The 183A Phase II Project and the Final Build Phase will utilize all-ETC facilities only.

B3.03. Toll Implementation Plan Segments

Toll collection for the various segments of the Toll Implementation Plan will be an all electronic toll collection (ETC) system similar in composition and functionality to those used on other toll roads in Texas, using automatic vehicle identification and classification technology, a Violation Enforcement System (VES) with an integrated camera and triggering system to capture digital images of license plates, and a Maintenance Online Management System (MOMS).

There will be no means to pay cash in the lanes. The mainlane and ramp toll collection facilities at the toll locations will be configured for normal highway/ramp-speed lanes, equipped with all-ETC equipment for cashless nonstop toll collection.

Schedule 1 is amended by:

- (1) adding the attached Schedule 1.1 (pages 1.1-1 through 1.1-5) between pages Schedule 1-14 and Schedule 1-15;
- (2) adding the attached page Schedule 1-15a after page Schedule 1-15;
- (3) deleting page Schedule 1-20 in its entirety and replacing it with attached page Schedule 1-20a; and
- (4) amending the TOTAL PROPOSED PRICE-All Segments and Common Items on page Schedule 1-21 to read, **\$22,559,465**.

Except to the extent modified herein, all terms and conditions of the Contract shall continue in full force and effect.

By their signatures below, the parties of the Contract evidence their agreement to the amendment set forth above.

CENTRAL TEXAS REGIONAL
MOBILITY AUTHORITY

TELVENT USA CORPORATION

Mike Heiligenstein
Executive Director

**TOLL COLLECTION SYSTEMS IMPLEMENTATION
FEE SCHEDULES**

Payment Measurement

This schedule provides descriptions of the Method of Measurement and the Basis of Payment for the bid items necessary to complete the work under this Project. The Contractor is required to submit price proposals which are based on the Method of Measurement and Basis of Payment for each item described in this schedule.

Payment Items

101. Tolling Lanes & Shoulders

Method of Measurement

Tolling Lanes & Shoulders shall be measured per each for the various lane configurations. Each shall include furnishing all labor, materials, and support services to complete the procurement, factory testing, delivery, installation, and acceptance of the Tolling Lanes & Shoulders, complete with all internal components, enclosures, and mounting devices, all in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Each individual assembly shall include the Lane Controller, Automatic Vehicle Classification (AVC) System, Automatic Vehicle Identification (AVI) System, and Violation Enforcement System (VES) Hardware, with an integrated camera and triggering system to capture referenced digital images of license plates. Each shall include furnishing all labor, materials, and support services to complete the design, fabrication, factory testing, packaging, delivery, field installation, and acceptance of the hardware, modifications to existing software to add the new locations to the System, and electrical work, complete with all internal components, enclosures, and mounting devices, all in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Basis of Payment

Payment will be made at the unit bid price upon successful delivery and verification of the Tolling Lanes & Shoulders for the various lane configurations as described below. Payment for the Tolling Lanes & Shoulders installations does not relieve the Contractor from any responsibilities and terms specified in the Contract.

<u>Payment Items</u>	
Item #101a	Shoulder
Item #101b	One Lane
Item #101c	Two Lanes
Item #101d	Three Lanes
Item #101e	Four Lanes

102. Communication Equipment

Method of Measurement

Communication Equipment shall be measured on a unit price basis for each remote tolling location. Each unit item shall include furnishing all labor, equipment, materials, and support services necessary to complete the design, procurement, installation, field testing, and acceptance of the Communication Equipment in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Basis of Payment

Payment for Communication Equipment at each remote tolling location will be made at the contract unit price bid per each upon installation and verification of the interface with the communication network from each remote tolling location, including appropriate communications links between the various remote tolling facilities and the CTRMA Administrative Offices, the existing Field Operations Building, and the TTA's Customer Service Center.

103. Video/DVR System Equipment

Method of Measurement

The Video/DVR System Equipment shall be measured on a unit basis per each individual remote tolling location. Each shall include furnishing all labor, equipment, materials, and support services to complete the installation and integration with the network.

Basis of Payment

Payment will be made at the unit bid price per each individual tolling location upon the successful completion and approval of the Video/DVR System Equipment by the CTRMA per the requirements of the Contract. The completed installation at each individual tolling location shall include the DVR system equipment procurement, installation, testing, integration and acceptance, complete with all internal components, enclosures, and mounting devices, all in conformance with the requirements of the Contract, and as accepted by the CTRMA. Payment for the Video/DVR System Equipment item does not relieve the Contractor from any responsibilities and terms specified in the Contract.

104. ILP Building Equipment

Method of Measurement

The ILP Building Equipment shall be measured per each ILP Building Equipment installed at each remote tolling location. Each shall include furnishing all labor, equipment, materials, and support services to complete the procurement, delivery, installation, testing, and acceptance of each facility, complete with all internal components, enclosures, and mounting devices, the UPS, and emergency generator set, all in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Schedule 1.1

Basis of Payment

Payment for ILP Building Equipment will be made at the unit bid price upon successful delivery and installation at each remote tolling location. Each shall include furnishing all labor, materials, warranty, and support services to complete the design, procurement, delivery, installation, testing, training and acceptance of the ILP enclosure, complete with all internal components, enclosures, and mounting devices, all in conformance with the requirements of the Contract, and as accepted by the CTRMA. Each shall also include furnishing all labor, materials, warranty, and support services to complete the design, procurement, delivery, installation, testing, training and acceptance of a UPS and an Emergency Generator set, complete with all internal components, enclosures, and mounting devices, all in conformance with the requirements of the Contract, and as accepted by the CTRMA. Payment shall also include warranty-guarantee services, in accordance with the requirements of the Contract. Payment for the ILP Building Equipment item does not relieve the Contractor from any responsibilities and terms specified in the Contract.

105. Upgraded SAN Host

Method of Measurement

The Upgraded SAN Host shall be measured on a lump sum basis as specified in Chapter II of Attachment E, Technical Requirements and shall include the Operating System and the Database. The lump sum unit shall include furnishing all labor, materials, licenses, and support services to complete the design, purchase, development, factory testing, site installation, configuration, documentation, of the SAN Host Computer upgrade all in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Basis of Payment

Payment will be made at the lump sum bid price upon successful delivery and verification of the complete and operating SAN Host Computer upgrade. Payment shall also include warranty-guarantee services and maintenance services, in accordance with the requirements of the Specifications. Payment for the SAN Host Computer upgrade does not relieve the Proposer from any responsibilities and terms specified in the Contract.

106. Replacement of DVTEL Equipment

Method of Measurement

Replacement of DVTEL Equipment shall be measured on a lump sum basis and shall include all support software integration. The lump sum unit shall include furnishing all labor, equipment, materials, licenses, and support services to complete the design, purchase, development, factory testing, site installation, configuration, documentation, testing and acceptance of the fully operational Security Access System, all in conformance with the requirements of the Contract, and as accepted by the CTRMA.

Schedule 1.1

Basis of Payment

Payment will be made at the lump sum bid price upon removal and satisfactory disposal of the existing DVTEL equipment and the successful delivery, installation, and integration of the complete and operable Security Access System. Payment shall also include warranty-guarantee services, and maintenance services, in accordance with the requirements of the Specifications. Payment for the Replacement of DVTEL Equipment does not relieve the Proposer from any responsibilities and terms specified in the Contract.

107. Fiber

Method of Measurement

The fiber optic system shall be measured on a unit basis per each individual remote tolling location. Each shall include furnishing all labor, equipment, materials, and support services to complete the network integration.

Basis of Payment

Payment will be made at the unit bid price per each individual tolling location upon the successful completion and approval of the system by the CTRMA per the requirements of the Contract. The completed fiber installation at each individual tolling location shall include outside fiber optic cable plant, inside cable plant and network components, i.e. fiber optic cable, terminations, switches, routers and associated network devices necessary for a complete and operating system. Each shall include furnishing all labor, materials, and support services to complete and integrate each individual location.

108. Lane/Shoulder Commissioning & Operational Testing

Method of Measurement

The Commissioning and Operational Testing shall be measured on a unit basis per each individual lane and/or shoulder. Each shall include furnishing all labor, materials, and support services to complete the commissioning and operational testing as detailed in Chapter IV of Attachment E, Technical Requirements.

Basis of Payment

Payment will be made at the unit bid price per each lane and/or shoulder upon the successful completion, approval of the Commissioning and Operational Tests by the CTRMA per the requirements of the Contract. Each shall include furnishing all labor, materials, and support services to complete the testing as detailed in Chapter IV of Attachment E, Technical Requirements. Payment for the Lane/Shoulder Commissioning & Operational Testing does not relieve the Contractor from any responsibilities and terms specified in the Contract.

109. Lane/Shoulder Installation/Electrical Design and Plans

Method of Measurement

Installation/Electrical Design Plan at each individual lane and/or shoulder shall be measured on the basis of a unit price per each. The unit price bid per each shall include all labor, materials and support services for the preparation of all installation documentation as detailed in Chapter III of Attachment E, Technical Requirements. This shall include but not be limited to installation documentation, lane testing, field assessment documentation, as-built plans, shop drawings, design drawings, schematic drawings and all other documentation developed as part of the Installation Program.

Basis of Payment

Payment will be made at the unit price bid per each upon approval of the documentation identified in Chapter III of Attachment E, Technical Requirements.

DRAFT

CTRMA 183A '1'D\ UqY'=

ITEM #	QTY.	UNIT	DESCRIPTION	UNIT PRICE	EXT PRICE
1			Tolling Lanes & Shoulders (includes: Materials/Equipment, SW mods to add new location to system, field installation/labor & electrical work)		
1a	7	EA	Shoulder	\$ 79,947.41	\$ 559,631.87
1b	3	EA	One lane	\$ 110,157.95	\$ 330,473.84
1c	0	EA	Two lanes	\$ 204,815.89	\$ -
1d	2	EA	Three lanes	\$ 299,473.84	\$ 598,947.68
1e	0	EA	Four lanes	\$ 394,131.78	\$ -
2	5	EA	Communication Equipment (incl's: Equipment /materials, installation & integration)	\$ 11,516.68	\$ 57,583.42
3	5	EA	Video/DVR System Equipment (incl's: Equipment /materials, installation & integration)	\$ 28,642.27	\$ 143,211.33
4	5	EA	ILP Building Equipment (incl's: Equipment /materials, installation & integration)	\$ 112,521.31	\$ 562,606.56
5	1	EA	Upgraded SAN Host (incl's: Equipment /materials, installation & integration)	\$ 568,266.53	\$ 568,266.53
6	1	EA	Replacement of DVTEL Equipment (incl's: Equipment /materials, installation & integration)	\$ 201,749.51	\$ 201,749.51
7	5	EA	Fiber (incl's: Equipment /materials, installation & integration)	\$ 33,867.63	\$ 169,338.15
8	12	EA	Per Lane/Shoulder Commissioning & Operational Testing	\$ 3,245.00	\$ 38,940.00
9	12	EA	Per Lane/Shoulder Installation/Electrical Design and Plans	\$ 5,607.26	\$ 67,287.11
				TOTAL PRICE	\$ 3,298,036.00

CTRMA 290E -- TOLLING

ITEM #	QTY.	UNIT	DESCRIPTION	UNIT PRICE	EXT PRICE
1			Tolling Lanes & Shoulders (includes: Materials/Equipment, SW mods to add new location to system, field installation/labor & electrical work)		
1a	17	EA	Shoulder Configuration	\$ 79,947.41	\$ 1,359,105.98
1b	5	EA	One lane Configuration	\$ 110,157.95	\$ 550,789.73
1c	1	EA	Two lanes Configuration	\$ 204,815.89	\$ 204,815.89
1d	3	EA	Three lanes Configuration	\$ 299,473.84	\$ 898,421.51
1e	3	EA	Four lanes Configuration	\$ 394,131.78	\$ 1,182,395.35
2	12	EA	Communication Equipment (incl's: Equipment /materials, installation & integration)	\$ 11,516.68	\$ 138,200.22
3	12	EA	Video/DVR System Equipment (incl's: Equipment /materials, installation & integration)	\$ 23,892.27	\$ 286,707.19
4	12	EA	ILP Building Equipment (incl's: Equipment /materials, installation & integration) UPS & generators included	\$ 112,521.31	\$ 1,350,255.74
5	45	EA	Per Lane/Shoulder Commissioning & Operational Testing	\$ 1,947.00	\$ 87,615.00
6	45	EA	Per Lane/Shoulder Installation/Electrical Design and Plans	\$ 3,364.36	\$ 151,396.00
TOTAL PRICE TOLLING					\$ 6,209,702.60

CTRMA 290E -- ITS

ITEM #	QTY.	UNIT	DESCRIPTION	UNIT PRICE	EXT PRICE
1	5000	LF	Elec Condr (No. 2) Insulated	\$ 2.81	\$ 14,050.00
2	50000	LF	Elec Condr (No 4) Insulated	\$ 1.41	\$ 70,500.00
3	25000	LF	Elec Condr (No 6) Insulated	\$ 1.20	\$ 30,000.00
4	500	LF	Elec Condr (No 8) Insulated	\$ 0.95	\$ 475.00
5	35000	LF	Elec Condr (No 14) Insulated	\$ 0.70	\$ 24,500.00
6	1	LS	ITS System Support Equipment	\$ 15,000.00	\$ 15,000.00
7	2200	LF	Fiber Optic CBL (Single - Mode)(12 Fiber)	\$ 2.56	\$ 5,632.00
8	40000	LF	Fiber Optic CBL (Single - Mode)(48 Fiber)	\$ 2.97	\$ 118,800.00
9	40000	LF	Fiber Optic CBL (Single - Mode)(72 Fiber)	\$ 3.28	\$ 131,200.00
10	5000	LF	Fiber Optic Cable Pigtail (12 Fiber)	\$ 3.26	\$ 16,300.00
11	10	EA	Fiber Optic Splice Enclosure	\$ 854.00	\$ 8,540.00
12	15	EA	Fibr Patch Panel (12 Position)	\$ 437.00	\$ 6,555.00
13	3	EA	Fiber Patch Panel (72 Position)	\$ 2,960.00	\$ 8,880.00
14	9	EA	CCTV Field Equipment	\$ 7,500.00	\$ 67,500.00
15	2500	LF	Conduit (Prepare)	\$ 1.00	\$ 2,500.00
16	1	EA	Communication S HUB Building	\$ 40,000.00	\$ 40,000.00
17	25	EA	MVD Cabinet (Special)	\$ 1,000.00	\$ 25,000.00
18	9	EA	Camera Cabinet	\$ 1,200.00	\$ 10,800.00
19	50	EA	Microwave Vehicle Detection System	\$ 5,500.00	\$ 275,000.00
20	9	EA	Video Encoder	\$ 3,877.40	\$ 34,896.60
21	9	EA	Video Decoder	\$ 4,088.10	\$ 36,792.90
22	25	EA	Wireless Ethernet Radio	\$ 4,200.00	\$ 105,000.00
23	12	EA	Field Ethernet Switch	\$ 3,200.00	\$ 38,400.00
24	15	EA	Field Terminal Server	\$ 1,400.00	\$ 21,000.00
25	2000	LF	Ethernet Cable Cat 5	\$ 1.16	\$ 2,320.00
26	2	EA	LED DMS Field Equipment (18 in)	\$ 100,000.00	\$ 200,000.00
27	1	LS	System Integration	\$ 32,000.00	\$ 32,000.00
28	1	LS	System Design	\$ 189,778.41	\$ 189,778.41
TOTAL PRICE ITS					\$ 1,531,419.91
TOTAL PRICE (TOLLING + ITS)					\$ 7,741,122.51

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

WORK AUTHORIZATION

WORK AUTHORIZATION NO. 6

**TOLL COLLECTION SYSTEMS
AND TRAFFIC MANAGEMENT SYSTEM IMPLEMENTATION
290 East Toll Project (Manor Expressway)**

THIS WORK AUTHORIZATION is made this 27th day of April, 2011, pursuant to the terms and conditions of Article 1 of the GENERAL PROVISIONS, Attachment A to the original Contract for Toll System Implementation, dated April 27, 2005 (the Contract) entered into by and between the Central Texas Regional Mobility Authority (the “Authority” or “CTRMA”), and TELVENT- USA Corporation (the Contractor).

PART I. The Contractor will perform toll integration services generally described in the Scope of Work attached hereto as Exhibit A, including the Detailed Lane Configurations attached thereto. The Contractor’s duties are further described in the Project Schedule and Milestones contained in Exhibit C hereto. The Contractor’s duties and responsibilities to coordinate with the CTRMA’s contracted segment designers and construction contractors and the CDA developer is detailed in the Responsibilities Matrix attached hereto as Exhibit B. Exhibits A, B and C are attached hereto and made a part of this Work Authorization.

PART II. The maximum amount payable under this Work Authorization No. 6 is \$7,741,122.51. This amount is based generally upon the estimated fees set forth in Schedule 1 of the Contract, as superceded by the fee schedule set forth in Exhibit D hereto which is incorporated herein and made a part of this Work Authorization.

PART III. Payment to the Contractor for the services established under this Work Authorization shall be made in accordance with Article 12 of the Contract, and Attachment A, Article 1 of the GENERAL PROVISIONS.

PART IV. This Work Authorization shall become effective on the date of execution by the parties hereto and shall terminate on December 31, 2014 unless extended by a supplemental Work Authorization as provided in Attachment A, Article 1 of the GENERAL PROVISIONS. The work shall be performed in accordance with the Project Schedule and Milestones as set forth in Exhibit C.

PART V. This Work Authorization No. 6 does not waive any of the parties' responsibilities and obligations provided under the Contract, and except as specifically modified by this Work Authorization, all such responsibilities and obligations remain in full force and effect.

IN WITNESS WHEREOF, this Work Authorization No. 6 is executed in duplicate counterparts and hereby accepted and acknowledged below.

THE CONTRACTOR:

Signature

Date

Typed/Printed Name and Title

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

Executed for and approved by the Central Texas Regional Mobility Authority for the purpose and effect of activating and/or carrying out the orders, established policies or work programs heretofore approved and authorized by the Texas Transportation Commission.

Signature

Date

Typed/Printed Name and Title

LIST OF EXHIBITS

Exhibit A	Scope of Work
Exhibit B	Responsibility Matrix
Exhibit C	Project Schedule Milestones
Exhibit D	Fee Schedule/Budget

EXHIBIT A

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY
TOLL COLLECTION SYSTEMS
AND TRAFFIC MANAGEMENT SYSTEM IMPLEMENTATION
290 East Toll Project (Manor Expressway)

SCOPE OF WORK for SYSTEMS INTEGRATOR

A1.0 General

A1.01. Background

The Capital Area Metropolitan Planning Organization (CAMPO) approved the implementation of the proposed Toll Implementation Plan to construct additional capacity on various segments of highway network in the CAMPO Long-Range Plan as toll road facilities in conjunction with plans for development of the Central Texas Turnpike Project. Several of the toll road segments are in various stages of project development, design or construction by the Central Texas Regional Mobility Authority (CTRMA). It is intended that these proposed segments will be implemented by the CTRMA as parts of the CTRMA Toll Road System. The Toll Collection System (TCS) for the 290 East Toll Project (Manor Expressway) will be all Electronic Toll Collection (ETC). Phase 1 of the Project is currently expected to open to traffic and tolling in 2012. Phase 2 is currently being procured through a Design Build / Comprehensive Development Agreement (CDA), with an anticipated substantial completion scheduled in 2014.

Additionally, Manor Expressway will require the implementation of a Traffic Management System (TMS). While the roadway corridor will be designed and constructed in phases, the TMS will be designed as a whole, before installation of any individual field component or fiber segments. This necessitates the timely completion of a complete TMS Plan.

A1.02. Summary Scope of Work

The Scope of Work for Work Authorization No. 6 consists of two (2) components: (1) Toll Collection System Implementation; and (2) Traffic Management System Implementation. A description of the scope of work for each component is described below.

A1.02.A. Toll Collection System Implementation. Part A of the Scope of Work for Work Authorization No. 6 provides for the procurement, installation, testing, and implementation of a complete and fully operational TCS for the Project by the Systems Integrator (SI), including all of the required communications and systems interfaces including design, coordination, and project interface activities to facilitate the design and construction of the toll system infrastructure facilities by others on Segment 1 of the 290 East Toll Project (Manor Expressway). Note that the scope of work will also include procurement, installation, testing and implementation that will be necessary such that the interim milestone of Phase 2 is operational. A general description of the Manor Expressway phasing is provided in Section A2.01.

This Work Authorization also authorizes the SI to establish and maintain relationships with a wide variety of third parties and to coordinate the designs for the proposed TCS with the entire 290 East Toll Project to ensure that the construction of the toll system infrastructure facilities will be fully compatible and will meet the requirements for the CTRMA's TCS. In this role, the SI will work closely with CTRMA, TxDOT, and

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various designers and roadway contractors in developing the required complete TCS and network infrastructure.

A1.02.B. Traffic Management System. Part B of the Scope of Work for Work Authorization No. 6 provides for the design, purchase, and installation of a complete and fully operational TMS for the project by the Systems Integrator. Scope shall include coordination and project interface activities to facilitate the design and construction of the TMS infrastructure facilities by others.

This Work Authorization also authorizes the SI to establish and maintain relationships with a wide variety of third parties and to coordinate the designs for the proposed system with the entire 290 East Toll Project to ensure that the construction of the TMS infrastructure facilities will be fully compatible and will meet the requirements for the CTRMA's Traffic Management System. In this role, the SI will work closely with CTRMA, TxDOT, and various designers and roadway contractors in developing the required complete Traffic Management System and network infrastructure.

A2.0 General Description – Toll Road Infrastructure and Site

A2.01. Manor Expressway: US 183 to Parmer Lane (FM734)

The Manor Expressway Toll Project limits extend from just east of US 183 to east of SH 130, for a total length of approximately 6.2 miles. The existing roadway includes two 12-ft lanes in each direction with a depressed grassed median. Average right-of-way width is approximately 210 feet. There are several signalized at-grade intersections, approximately every mile, located at Tuscany Way, Springdale Road, Giles/Johnny Morris Road, FM 3177 (Decker Lane), Old Highway 20, and Boyce Road/Parmer Lane. Two signalized intersections at the frontage road of SH 130 and an EB to NB direct connector were constructed as part of the SH 130 project.

Proposed Facility: The proposed work for the entire toll road facility will consist of the reconstruction of approximately six miles of US 290 East from US 183 to east of SH 130, and will include three tolled mainlanes in each direction and three non-tolled frontage road lanes in each direction. Additionally, one direct connector ramp at the US 290 East / SH 130 system interchange will be included as part of the Project. Grade-separated interchanges will be located at Tuscany Way, Springdale Road, proposed Arterial 'A', Johnny Morris / Giles Road, Decker Lane, SH 130, and Boyce Road / Parmer Lane (FM 734).

The Manor Expressway Project will be implemented in two phases. Phase I (also known as Segment 1) includes construction of four direct connectors and associated ramps at the US 183 interchange that will provide direct access to and from the Manor Expressway mainlanes with US 183. Toll gantries will be installed to toll each of the direct connectors. Phase II includes completion of the remainder of the Manor Expressway Project from Phase I at the US 183 interchange to the eastern project limits located east of SH 130, and includes an interim milestone that will need to be completed in order for the previous phase (Phase 1) to open to traffic and tolling. The interim milestone will consist of tolling configurations that are temporary until the full corridor is complete.

The Toll Collection System (TCS) for the various designated segments of the 290 East Toll Project (Manor Expressway) will be all Electronic Toll Collection (ETC). The entire full build project will consist of twenty seven (27) gantry lanes at the locations listed in Table 1 below. Locations are approximate and may be subject to change as the CDA Developer progresses towards the completion of plans development. Also, please note that Phase 1 will require the construction of a temporary mainlane gantry tentatively located east

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of Springdale to capture vehicles traveling in the eastbound direction. The temporary gantry will consist of 2 gantry lanes.

Table 1: Full Build Gantry Locations and Lane Counts

Location	Direction of Travel	No. of Lanes	No. of Shoulders (8' or greater)	Comments
Sta. 65+80 Direct Connector Flyover West to North	Westbound	3	2	Only two (2) are operational in interim milestone
Sta. 65+80 Direct Connector Flyover South to East	Eastbound	4	1	Only two (2) are operational in interim milestone
Sta. 299+50 Ramp 3 Toll Gantry (East of Springdale)	Westbound	1	1	Two (2) are operational in interim milestone, therefore, one (1) will need to be removed upon completion of full build
Sta. 299+75 Ramp 4 Toll Gantry (East of Springdale)	Eastbound	1	1	
Sta. 349+50 Ramp 7 Toll Gantry (East of Arterial A)	Westbound	1	1	
Sta. 355+75 Ramp 8 Toll Gantry (East of Arterial A)	Eastbound	1	1	
Sta. 384+20 Mainlane Gantry West of Giles Rd	Westbound	4	2	
Sta. 384+20 Mainlane Gantry West of Giles Rd	Eastbound	4	2	
Sta. 432+80 Ramp 11 Toll Gantry West of Harris Branch	Westbound	1	1	
Sta. 430+50 Ramp 12 Toll Gantry West of Harris Branch	Eastbound	1	1	
Sta. 1526+90 Mainlane Gantry West of Parmer	Westbound	3	2	
Sta. 1526+90 Mainlane Gantry West of Parmer	Eastbound	3	2	
Total Gantry Lanes (Full Build)		27	17	

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A3.0 General Description - Toll Collection System & Traffic Management System Elements

A3.01. General Requirements—Toll Collection System

The TCS for the CTRMA Turnpike System, which is being designed and implemented through a series of separate work authorizations for the various segments of the proposed Toll Road System, generally will be fully compatible with the TCS which has been designed and implemented for the 183A Toll Road Project, using automatic vehicle identification and classification technology, a Violation Enforcement System (VES) with an integrated camera and triggering system to capture referenced digital images of license plates, and a Remote Online Management System (ROMS). It is required that the TCS be interoperable with the other Texas ETC systems.

The Customer Service Center (CSC) is located in a facility at 12719 Burnet Road, Austin, Texas, developed and administrated by the TTA Division of TxDOT. The CTRMA contracts with the members of the Texas Statewide Interoperability Task force for CSC services for its customers. Expansion of CTRMA's TCS to serve the 290 East Toll Project includes coordination and design of appropriate interfaces with the CSC. Appropriate communications links between the various toll facilities on the CTRMA Toll Road System and the CTRMA Administrative Offices, the Field Operations Building(s) and the Violation Processing Center (VPC) are part of the requirements of the design/implementation work.

The VPC is located in a separate facility, and is being administrated by the Municipal Services Bureau, Inc. under contract to the CTRMA. Development of CTRMA's TCS also will include coordination and design of appropriate interfaces with the VPC. Appropriate communications links between the various toll facilities on the CTRMA Toll Road System and the CTRMA Administrative Offices, the Field Operations Building(s) and the CSC are part of the requirements of the design/implementation work.

A detailed tabulation of the elements of the TCS, indicating locations and basic components is attached as "*Detailed Lane Configurations*". The general locations, layouts, and implementation schedule for the toll facilities for the 290 East Toll Project, as currently proposed, are indicated on the attached Exhibits. These Exhibits are based on the latest information currently available, and they are intended for informational purposes only. The locations are subject to change, and it should be anticipated that refinements and adjustment to the locations and layouts indicated will be required as designs for the TCS are developed further.

A3.02. General Requirements—Traffic Management System

The Intelligent Transportation System (ITS) for the Manor Expressway Toll Project includes a concrete encased duct bank consisting of twelve 2-inch conduits along the length of the project, closed-circuit television (CCTV) surveillance cameras, dynamic message signs (DMS), vehicle detectors, and communication hub enclosures. Communication with the TxDOT Austin District Traffic Management Center (TMC) will be accommodated in the duct bank design. The ITS and duct bank shall be in accordance with guidelines included in the *Austin District Guidelines for Developing Freeway Corridor Traffic Management System*.

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The project design shall include ITS components consistent with the overall location and quantity of ITS components in the “*ITS Schematic*.” The general locations, layouts, and implementation schedule for the TMS for the 290 East Toll Project, as currently proposed, are based on the latest information currently available, and they are intended for informational purposes only. The locations are subject to change, and it should be anticipated that refinements and adjustment to the locations and layouts indicated will be required as designs for the TMS are developed further.

The SI shall design and install a Traffic Management System that is compatible with the Austin Regional ITS Architecture for both control of devices and reception of images and data. The proposed system shall be an extension of field devices to the already existing TxDOT Austin District System. The database administrator at the TMC will add the new device addresses to the already functioning tables. Note also that the fiber trunk line for the Manor Expressway shall be tied into the TxDOT fiber system at the US 183 HUB facility.

A4.0 General Description – Equipment and Installation

A4.01. Gantries and Roadside Equipment for ETC Systems

For all TCS field installations on the various segments of the 290 East Toll Project, the SI will be required to provide and install the toll equipment systems and hardware for a complete, tested, and operating TCSs under this Work Authorization. The principle items of work and primary components of the TCS at each Remote Express Toll Location will include, but are not limited to:

- Furnish & Install Lane Controllers
- Furnish & Install Express ETC Lane components, including AVDS, AVC, VES, TSI and AVI systems and hardware.
- Furnish & Install all ETC Lane Equipment wiring & cable, hardware, brackets, and fasteners required to attach the ETC equipment to the gantries provided by the others.
- Furnish & Install ROMs monitoring for all ETC site equipment (i.e.: ETC Equipment, AVDS, AVC, AVI, VES, HVAC, generators, power, communications equipment, etc)
- Communication System Outside Fiber Optic Cable Plant, Inside Cable Plant, and Network Components (i.e.: Fiber Optic Cable, Terminations, Switches, routers and other network devices)
- Furnish & Install Master Ground System connected to the Master Ground Bus Bar provided by others
- Furnish & Install Lightning Surge Suppression System & Components for AVI, network, VES, UPS power, and service/feeder power.
- Furnish & Install Backup Electrical Power including Emergency Generators, Fuel Tanks, and Automatic Transfer Switches.
- Furnish & Install Uninterruptible Power Supply, including wiring & cable, hardware, and ROMs interface
- Furnish & Install In-Lane Processor (ILP) enclosure, with HVAC for appropriate environmental protection and climate controls for electronic equipment. Furnish & Install Site Surveillance Cameras & Security Systems to monitor each ILP and gantries.
- Provide complete testing, certification and acceptance of all systems for complete, fully operational TCS, furnished and installed.

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The procurement, fabrication and installation of gantries for the TCS to be located on the segments of the Project will be by others. It is the responsibility of the SI, nevertheless, to work closely with CTRMA and the various designers and roadway contractors to establish the precise locations for each of the gantry structures and to provide the Roadway Contractor(s) with detailed information of the installation for the TCS equipment at each location.

A4.02. ITS Systems Design

For all TMS field installations on the various segments of the 290 East Toll Project, the SI will be responsible for the final ITS systems design and the purchase and installation of the ITS equipment. The principle items of work and primary components of the TMS at each will include, but are not limited to:

- Duct Banks: Furnish and install the fiber optic cabling required for the ITS and tolling systems. The duct bank shall be constructed by others.
- CCTV Cameras: Furnish and install the cameras, communications, and equipment enclosures. Installation of foundations, conduits and conduit laterals, grounding, camera poles, and electrical services shall be provided by others.
- DMS: Furnish and install the DMS, communications, and equipment enclosures. Installation of foundations, conduits and conduit laterals, grounding, DMS support structures, and electrical services for DMS (at the location specified by the SI) shall be completed by others.
- Vehicle Detectors: Furnish and install vehicle detectors, communications, and equipment enclosures. Installation of foundations, conduits, grounding, vehicle detector support structures, and electrical services for vehicle detectors (at the locations specified by the SI) shall be completed by others.
- Communication HUB Enclosures: Design, furnish, and install the HUB enclosures. Design and construction of the HUB enclosure support slab shall be completed by others.

As indicated above, elements of the ITS infrastructure will be the responsibility of others. Nevertheless, it is the responsibility of the SI to work closely with CTRMA and the various designers and roadway contractors to establish the precise locations for the elements above and to provide the Roadway Contractor(s) with detailed information as needed

A5.0 Coordination and Project Interface

The work related to this Work Authorization No. 6 generally will include, but not be limited to:

- Design input and providing detailed information including TCS and TMS component details, dimensions and layout configurations, and specific technical requirements for elements of the proposed TCS and TMS;
- Preparation of construction/installation guidelines for various components of CTRMA's TCS and TMS;
- Review of construction documents prepared by others; and
- Attendance and participation at coordination meetings as determined by project schedule and/or as requested by the CTRMA.
- Submit Installation Plan and Installation Drawings to the CTRMA for review and approval

EXHIBIT A

The SI is to participate in the process for coordination which will enable the contractors and designers on the various segments of the 290 East Toll Project to obtain specific, detailed information regarding the proposed TCS and TMS components in order to complete the design/construction of the appropriate toll facilities infrastructure. The SI will be responsible for maintaining relationships with a wide variety of third parties, including designers, roadway contractors, and various suppliers. In this role, the SI will work closely with CTRMA and TxDOT in developing the required network.

All TCS infrastructure facilities at the remote Express Toll Locations on the various segments of the Project and TMS infrastructure will be provided by others as indicated in **Section A6.0 and Section A7.0** hereof. The SI shall fully coordinate the designs for the TCS and TMS with others and provide the required details and technical requirements to ensure that the construction of the toll system infrastructure facilities will be fully compatible and meet the requirements for the CTRMA's TCS and TMS.

The SI is responsible for coordinating with others and for providing all necessary details, system requirements, and reviews of construction documents to ensure that the gantries and TMS components are located and configured properly to accommodate the SI's own particular system components as required to meet the CTRMA TCS and TMS performance and accuracy requirements.

A6.0. Work by Others

A6.01. Civil/Roadway Construction—Toll Collections System

The CTRMA, through its roadway construction contracts and a CDA, will provide for a minimum of 60 linear feet of jointed concrete pavement in each of the areas designated for toll collection facilities. The pavement will be reinforced with Glass Fiber Reinforced Polymer (GFRP) bars. Transverse joints and longitudinal joints will be placed at positions equal to lane widths and as shown on the CTRMA details. Power and communication lines to support the Wide Area Network (WAN) will be provided by others and terminated at an ILP enclosure in an area within 500 feet of ILP. The SI is responsible for the communication links between the Host, the CSC, the VPC, and all Remote Express Toll Location facilities via a Communication Trunkline and WAN.

Except as may be expressly indicated elsewhere, all toll system infrastructure required for the TCSs at the designated remote Express Toll Locations will be provided and installed by others. The principle items of work and primary components of the TCS infrastructure at each remote Express Toll Location shall include, but are not limited to:

- GFRP Bar Reinforced Pavement Section;
- Retaining Walls and Coping Details;
- Drainage Features;
- Civil Site Work, including Grading, Access Driveways, and Fencing;
- All toll gantry procurement and installations, including foundations and gantry structures;
- ILP concrete foundation slab. The ILP's are to be provided with appropriate environmental protection and climate controls for housing the electronic equipment by the SI;
- Conduit and ground boxes providing connections between the ILP's and the ETC Lane equipment installations. NOTE: It is the responsibility of the SI to coordinate with the Roadway

EXHIBIT A

- Contractor(s) for the placement and installation of these elements to ensure that the construction is acceptable for the TCS as designed;
- Gantry and ILP enclosure lightning protection air, terminal, Down Conductors, ILP Master Bus Bar, and Ground Electrodes. Equipment connection to the Ground Electrode for the ILP enclosure Master Ground Bus Bar will be provided by Others;
 - Power and WAN communication services up to the location of the proposed ILP enclosures;
 - Concrete foundations for Emergency Generators and associated fuel tanks; and
 - All signing, pavement markings, traffic barriers and other roadway appurtenances required at each remote Express Toll Location.

A6.02. Civil/Roadway Construction—Traffic Management System

Except as may be expressly indicated elsewhere, all TMS infrastructure required will be provided and installed by others. The principle items of work and primary components of the TMS infrastructure shall include, but are not limited to:

- ITS layouts;
- Duct bank;
- Foundations;
- Conduits;
- Electrical Services;
- Grounding circuits;
- Support structures

A7.0 Work Authorization No. 6 Toll Facilities Responsibility Matrix

The SI is responsible for design and coordination of the various aspects of the TCS as identified in the *EXHIBIT B - Toll Facilities and ITS Responsibility Matrix*, and shall work with the CTRMA, TxDOT, roadway designers and contractors, and others as described herein.

A8.0 Project Schedule

The Project Schedule shall be developed to incorporate the Milestone Dates established for this Work Authorization No. 6 as presented in Exhibit C.

[END OF SECTION]

EXHIBIT B

Central Texas Regional Mobility Authority

Toll Systems & ITS Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	D/B CDA Developer (D/B)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	
FACILITIES							
Toll Plaza Layout	A	A	A	B	D	D	SI to provide system design. D/B to incorporate into Project Design. Preliminary design provided in existing design plans
Metered power service to ILP	A	A	A	B	D	C	SI to provide power requirements and special requirement for construction of utilities near toll collection point.
Complete backup power systems: generators, automatic transfer switches, and fuel tanks	C	D	B	A	A	A	
Foundation and conduits for backup power systems	A	A	A	B	D	D	D/B to provide foundations and conduits between foundations
Uniform Uninterruptible Power Supplies	C	C	C	A	A	A	
Lightning Protection & Grounding	A	A	A	B	C	C	
Duct Bank	A	A	A	B	D	C	D/B to install conduit Duct Bank complete with pull strings
Fiber Optic cables in Duct Bank for Toll Systems and ITS components	C	D	B	A	A	A	
Data/Communication service to ILP	C	D	B	A	A	A	SI to provide system design plans indicating power and communication/data requirements, D/B to install up to the ILP at demark panel.
Data/Communication wire/fiber from ILP to equipment	C	C	C	A	A	A	SI to install from ILP to equipment.

EXHIBIT B

Central Texas Regional Mobility Authority

Toll Systems & ITS Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	D/B CDA Developer (D/B)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	
Pavement, inclusive of special nonferrous zones and conduit stub outs for in pavement sensors	B	A	A	B	D	C	SI to provide any special requirements for pavement design
Pavement sensors	C	C	C	A	A	A	SI to saw cut and install pavement sensors
Gantries including special framing for equipment mounts	A	A	A	B	D	C	SI to provide requirements for specific equipment mounts, conduits, J boxes, power and data wiring. Developer to incorporate into Structural Design
Equipment mounts on Gantries	B	D	C	A	A	A	SI to install any required equipment mounts on gantries. SI to coordinate with D/B during the design phase to incorporate any required framing to support equipment mounts.
ILP and roadside cabinet slabs	A	A	A	B	D	C	SI to provide requirements for size of slab needed.
ILPs and roadside cabinets (including HVAC systems)	B	D	C	A	A	A	SI to install complete
Lane Controller Hardware	D	D	D	A	A	A	
Communication Equipment	D	D	D	A	A	A	
ELECTRONIC TOLL COLLECTION SUB-SYSTEMS (ETC)							
Installation/Electrical Design and Plans	C	D	C	A	A	A	
Automatic Vehicle Classification System and Image Capturing System (ICS) Hardware	C	C	C	A	A	A	D/B to provide junction boxes and conduits, SI to install all power and data cable and install equipment
In Lane Processing Building Equipment	D	D	D	A	A	A	

EXHIBIT B

Central Texas Regional Mobility Authority

Toll Systems & ITS Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	D/B CDA Developer (D/B)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	
Computer rack system, routers, hubs, switches, firewalls, VPN, modems, patch/distribution panels,	D	D	D	A	A	A	
Toll Plaza Host Computer	D	D	D	A	A	A	
Back-up Host Computer	D	D	D	A	A	A	
Support equipment at CTRMA admin offices	D	D	D	A	A	A	
Workstations/Printers	D	D	D	A	A	A	
Commissioning and Operational Testing	D	D	C	A	A	A	
Lane controller software	D	D	D	A	A	A	
Plaza Computer Software	D	D	D	A	A	A	
Host Computer Software	D	D	D	A	A	A	
Toll Collection System Application Software	D	D	D	A	A	A	
Security Access System Software	D	D	D	A	A	A	
Maintenance Online Management System Software	D	D	D	A	A	A	
Factory Acceptance Test	D	D	D	A	A	A	
Project Acceptance Test	D	D	D	A	A	A	
Training	D	D	D	A	A	A	
Documentation	D	D	D	A	A	A	
FCC Licenses/Regulations as applies to toll systems	B	D	D	A	A	A	SI to procure process and initiate all required documentation, applications, permits and licenses as required permitting the CTRMA the right to use and or operate equipment and components.
Tolling location phone service	A	A	A	B	C	C	

EXHIBIT B

Central Texas Regional Mobility Authority

Toll Systems & ITS Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	D/B CDA Developer (D/B)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	
DUCT BANKS & INTELLIGENT TRANSPORTATION SYSTEMS (ITS)							
Duct Bank & ITS design	A	-	-	B	-	-	The D/B CDA Developer shall be responsible for the design of all ITS layouts, foundations, conduits, electrical services, grounding circuits, and support structures
Duct Bank & ITS systems design	B	-	-	A	-	-	The D/B CDA Developer shall coordinate with the SI and accommodate the SI's ITS systems design in the Project Design
Duct Bank	A	A	A	B	D	C	
Fiber optic cables	C	D	B	A	A	A	
CCTV Camera foundations, conduits, grounding, camera poles, and electrical services	A	A	A	B	C	C	
CCTV Camera, communications, and equipment enclosures	B	D	B	A	A	A	
DMS foundations, conduits, grounding, DMS support structures, and electrical services	A	A	A	B	C	C	
DMS, communications, and equipment enclosures	B	D	B	A	A	A	
Vehicle detectors foundations, conduits, grounding, vehicle detector support structures, and electrical services	A	A	A	B	C	C	
Vehicle detectors, communications, and equipment enclosures	B	D	B	A	A	A	

EXHIBIT B

Central Texas Regional Mobility Authority

Toll Systems & ITS Responsibility Matrix

LEGEND		Work Description		
Primary Responsibility	A	1	2	3
Support Responsibility	B	Design	Procure	Install and/or Construct
Coordination Responsibility Only	C			
No Responsibility	D			

Element/Task/Component/ Sub-system	D/B CDA Developer (D/B)			System Integrator (SI)			Comments Other Responsibility/Information
	1	2	3	1	2	3	
Communication HUB enclosures support slab	A	A	A	B	C	C	
Communication HUB enclosures	B	D	B	A	A	A	

EXHIBIT C
290 EAST TOLL PROJECT (MANOR EXPRESSWAY)
PRELIMINARY SCHEDULE MILESTONES
(Dates and Durations Subject to Change)

Phase I	
Task	Duration and/or Milestone Date
Advertise For Construction—Segment 1	October 23,2009
Bid Opening – Segment 1	November 23, 2009
Contract Award – Segment 1	January 12, 2010
Issue Notice to Proceed – Segment 1	April 27, 2010
Roadway Contractor (Webber) to complete Tolls Infrastructure	438 days (Maximum)
Tolls Collection System Completed	120 days (From Completion of Tolls Infrastructure)
Final Acceptance	90 days
Phase II	
Task	Duration and/or Milestone Date
Advertise For CDA Developer—Segments 2 & 3	June 13, 2010
CTRMA Selects Best Value Proposer	February 23, 2011
Contract Award	May 2011
Issue Notice to Proceed	June 2011
Roadway Contractor (Webber) to complete Tolls Infrastructure	835 days (Maximum)
Tolls Collection System Completed	120 days (From Completion of Tolls Infrastructure)
Final Acceptance	120 days

EXHIBIT D: Fee Schedule

CTRMA 290E -- TOLLING					
ITEM #	QTY.	UNIT	DESCRIPTION	UNIT PRICE	EXT PRICE
1			Tolling Lanes & Shoulders (includes: Materials/Equipment, SW mods to add new location to system, field installation/labor & electrical work)		
1a	17	EA	Shoulder Configuration	\$ 79,947.41	\$ 1,359,105.98
1b	5	EA	One lane Configuration	\$ 110,157.95	\$ 550,789.73
1c	1	EA	Two lanes Configuration	\$ 204,815.89	\$ 204,815.89
1d	3	EA	Three lanes Configuration	\$ 299,473.84	\$ 898,421.51
1e	3	EA	Four lanes Configuration	\$ 394,131.78	\$ 1,182,395.35
2	12	EA	Communication Equipment (incl's: Equipment /materials, installation & integration)	\$ 11,516.68	\$ 138,200.22
3	12	EA	Video/DVR System Equipment (incl's: Equipment /materials, installation & integration)	\$ 23,892.27	\$ 286,707.19
4	12	EA	ILP Building Equipment (incl's: Equipment /materials, installation & integration) UPS & generators included	\$ 112,521.31	\$ 1,350,255.74
5	45	EA	Per Lane/Shoulder Commissioning & Operational Testing	\$ 1,947.00	\$ 87,615.00
6	45	EA	Per Lane/Shoulder Installation/Electrical Design and Plans	\$ 3,364.36	\$ 151,396.00
TOTAL PRICE TOLLING					\$ 6,209,702.60

EXHIBIT D: Fee Schedule

CTRMA 290E -- ITS					
ITEM #	QTY.	UNIT	DESCRIPTION	UNIT PRICE	EXT PRICE
1	5000	LF	Elec Condr (No. 2) Insulated	\$ 2.81	\$ 14,050.00
2	50000	LF	Elec Condr (No 4) Insulated	\$ 1.41	\$ 70,500.00
3	25000	LF	Elec Condr (No 6) Insulated	\$ 1.20	\$ 30,000.00
4	500	LF	Elec Condr (No 8) Insulated	\$ 0.95	\$ 475.00
5	35000	LF	Elec Condr (No 14) Insulated	\$ 0.70	\$ 24,500.00
6	1	LS	ITS System Support Equipment	\$ 15,000.00	\$ 15,000.00
7	2200	LF	Fiber Optic CBL (Single - Mode)(12 Fiber)	\$ 2.56	\$ 5,632.00
8	40000	LF	Fiber Optic CBL (Single - Mode)(48 Fiber)	\$ 2.97	\$ 118,800.00
9	40000	LF	Fiber Optic CBL (Single - Mode)(72 Fiber)	\$ 3.28	\$ 131,200.00
10	5000	LF	Fiber Optic Cable Pigtail (12 Fiber)	\$ 3.26	\$ 16,300.00
11	10	EA	Fiber Optic Splice Enclosure	\$ 854.00	\$ 8,540.00
12	15	EA	Fibr Patch Panel (12 Position)	\$ 437.00	\$ 6,555.00
13	3	EA	Fiber Patch Panel (72 Position)	\$ 2,960.00	\$ 8,880.00
14	9	EA	CCTV Field Equipment	\$ 7,500.00	\$ 67,500.00
15	2500	LF	Conduit (Prepare)	\$ 1.00	\$ 2,500.00
16	1	EA	Communication S HUB Building	\$ 40,000.00	\$ 40,000.00
17	25	EA	MVD Cabinet (Special)	\$ 1,000.00	\$ 25,000.00
18	9	EA	Camera Cabinet	\$ 1,200.00	\$ 10,800.00
19	50	EA	Microwave Vehicle Detection System	\$ 5,500.00	\$ 275,000.00
20	9	EA	Video Encoder	\$ 3,877.40	\$ 34,896.60
21	9	EA	Video Decoder	\$ 4,088.10	\$ 36,792.90
22	25	EA	Wireless Ethernet Radio	\$ 4,200.00	\$ 105,000.00
23	12	EA	Field Ethernet Switch	\$ 3,200.00	\$ 38,400.00
24	15	EA	Field Terminal Server	\$ 1,400.00	\$ 21,000.00
25	2000	LF	Ethernet Cable Cat 5	\$ 1.16	\$ 2,320.00
26	2	EA	LED DMS Field Equipment (18 in)	\$ 100,000.00	\$ 200,000.00
27	1	LS	System Integration	\$ 32,000.00	\$ 32,000.00
28	1	LS	System Design	\$ 189,778.41	\$ 189,778.41
TOTAL PRICE ITS					\$ 1,531,419.91
TOTAL PRICE (TOLLING + ITS)					\$ 7,741,122.51

Central Texas Regional Mobility Authority
CTRMA Turnpike System

Detailed Lane Configurations for 290 East Toll Project--FULL BUILD

Project	CTRMA Turnpike Seg	Toll Plaza or Express Toll Location	Lane Number	Lane Width (in Feet)	Lane Type				Electronic Control Cabinet	Lane Controller	ETC Toll Lane	Express ETC Lane	Violation Enforcement System (VES) Toll Lane	Violation Enforcement System (VES) Hardware, Express ETC Lane	Automatic Vehicle Classification System, Toll Lane	Automatic Vehicle Classification System, Express ETC Lane	AVI System Hardware, Toll Lane	AVI System Hardware, Express ETC Lane	Uninterruptible Power Supply	Emergency Generator & Automatic Transfer Switch	ILP Buildings		
					MAN/ETC	ACM/ETC	DED/ETC	Exp. ETC															
290E Toll Project - Full Build	7	DC 183 STA. 65+80 WNDK	SH	10																			
			1	12			1		1		1		1		1		1		1		1		
			2	12			1		1		1		1		1		1		1		1		
			3	12			1		1		1		1		1		1		1		1		
			SH	8																			
			Subtotal				3		3		3		3		3		3		3		3		3
			1	12			1		1		1		1		1		1		1		1		1
			2	12			1		1		1		1		1		1		1		1		1
			3	12			1		1		1		1		1		1		1		1		1
			4	12			1		1		1		1		1		1		1		1		1
		SH	8																				
		Subtotal				4		4		4		4		4		4		4		4		4	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	12			1		1		1		1		1		1		1		1		1	
		2	12			1		1		1		1		1		1		1		1		1	
		3	12			1		1		1		1		1		1		1		1		1	
		4	12			1		1		1		1		1		1		1		1		1	
		SH	10																				
		Subtotal				4		4		4		4		4		4		4		4		4	
		1	12			1		1		1		1		1		1		1		1		1	
		2	12			1		1		1		1		1		1		1		1		1	
		3	12			1		1		1		1		1		1		1		1		1	
		4	12			1		1		1		1		1		1		1		1		1	
		SH	10																				
		Subtotal				4		4		4		4		4		4		4		4		4	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	14			1		1		1		1		1		1		1		1		1	
		SH	8																				
		Subtotal				1		1		1		1		1		1		1		1		1	
		1	12			1		1		1		1		1		1		1		1		1	
		2	12			1		1		1		1		1		1		1		1		1	
		3	12			1		1		1		1		1		1		1		1		1	
		SH	10																				
		Subtotal				3		3		3		3		3		3		3		3		3	
		1	12			1		1		1		1		1		1		1		1		1	
		2	12			1		1		1		1		1		1		1		1		1	
		3	12			1		1		1		1		1		1		1		1		1	
		SH	10																				
		Subtotal				3		3		3		3		3		3		3		3		3	
		1	12			1		1		1		1		1		1		1		1		1	
		2	12			1		1		1		1		1		1		1		1		1	
		3	12			1		1		1		1		1		1		1		1		1	
		SH	10																				
		Subtotal				3		3		3		3		3		3		3		3		3	
		Contingency		N/A																1	1	1	
		Grand Totals						27		27		27		27		27		27		9	9	12	

- Notes:**
- Any equipment required in shoulders are included in the unit pricing for toll lanes.
 - All "Common Items" as defined in Schedule 1-21 of the original contract (dated April 27, 2005) was previously compensated for, therefore, is not quantified on this table or Exhibit D.
 - All Express ETC lanes have two Lane Controllers.
 - VES (Violation Enforcement System) cameras are planned for all lanes. Express ETC will have both front and rear camera systems.
 - Conduits and wiring within the Tolling Location, Ramp or Express Lanes must be designed to support the ultimate build-out and not restricted to the lane configurations shown in this table.
 - Furnish & Install all that is necessary to include All Cabinets, Hardware, Cabinet Ventilation, Grounding, UPS Backup Electrical Power, Signal Cabling for Back Office Equipment
 - Furnish & Install All ETC Wiring and Cable necessary for power and data
 - Furnish & Install All AVC Wiring and Cable necessary for power and data
 - Furnish & Install All AVI Wiring and Cable necessary for power and data
 - Furnish & Install VES Wiring and Cable necessary for power and data
 - Furnish & Install Communication Network Wiring and Cable necessary for power and data, including revenue network fiber optic cable
 - Furnish & Install ILP Building Wiring and Cable necessary for power and data, including MOMS Network Interface devices for electrical power and building temperature monitoring
 - Furnish & Install Generator & Automatic Transfer Switch (ATS) Wiring and Cable necessary for power and data, including MOMS Network Interface Device for Generator & ATS Electric Power Monitoring
 - Lane 1 is the lane closest to the road Center Line