**January 26, 2011 CTRMA BOARD OF DIRECTORS MEETING**
**Summary Sheet**

**AGENDA ITEM # 9**

**Authorization for execution of Work Authorization No. 5 with Telvent USA Corporation for Toll System Implementation for the 183A Phase II Project.**

**Department: Engineering**

**Associated Costs: $3,365,536.00**

**Funding Source: Bond Sale Funds**

**Board Action Required: YES**

**Description of Matter:**

**A Request for Proposals for the Toll Systems Integrator for the TOLL COLLECTION SYSTEMS IMPLEMENTATION AND PROCUREMENT for CTRMA's entire Toll Road System was advertised on December 20, 2004. An addendum was issued extending the date for submissions to March 1, 2005. Four proposals were received, and following the evaluations, Caseta Technologies, Inc. (now Telvent USA Corporation) was selected as the Best Value Proposal and a Contract was executed on April 27, 2005. The Contract was structured with the Base Contract, anticipating the phased implementation of the Toll Collection Systems for the seven toll road segments through series of separate Work Authorizations as the individual projects come on line.**

**This current Work Authorization No. 5 provides for the design, procurement, installation, and testing of the complete and working toll collection system for the 183A-Phase II Project. The work also includes coordination and interface with the roadway construction contractor, as well as communications systems linking the extended systems the Authority's central control systems.**

**Based on the review of the proposed Work Authorization by CTRMA 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. Approval of the Work Authorization is recommended.**

**Attached documentation for reference:**

**Work Authorization No. 5 for Toll System Implementation - 183A Phase II Project.**

**Contact for further information:**

**Wesley M. Burford, P.E., Director of Engineering**

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

**RESOLUTION NO. 11-___**

**Authorizing Work Authorization No. 5 under the Contract for Toll System Implementation dated April 27, 2005, between the Central Texas Regional Mobility Authority and Telvent USA Corporation.**

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, the 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 183A Phase II Project to extend the 183A Turnpike includes and requires the procurement, installation, testing, and implementation of a complete and fully operational toll collection system; and

WHEREAS, a proposed Work Order No. 5 with Telvent, attached as Attachment "A" to this Resolution, provides the required toll collection system as specified by the Scope of Services included in that Work Order, for a total payment by the Authority to Telvent of $3,365,536.

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors authorizes the Executive Director to finalize and execute Work Authorization No. 5 with Telvent USA Corporation in the form or substantially the same form set forth in Attachment "A" to this Resolution.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 26th day of January, 2011.

Submitted and reviewed by:

_____
Andrew Martin
General Counsel for the Central
Texas Regional Mobility Authority

Approved:

_____
Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number 11-___
Date Passed 1/26/11

**CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

*********************************

# WORK AUTHORIZATION

## WORK AUTHORIZATION NO. 5

## TOLL SYSTEM IMPLEMENTATION-
## 183A PHASE II PROJECT

**THIS WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 1 of the GENERAL PROVISIONS, Attachment A to that certain 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 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. 5 is **$3,365,536**. 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 Article12 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 April 26, 2012 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. 5 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. 5 is executed in duplicate counterparts and hereby accepted and acknowledged below.

**THE CONTRACTOR: Telvent USA Corporation**

| |
|---|
| 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 IMPLEMENTATION
### 183A Phase II Project

## SCOPE OF WORK FOR SYSTEMS INTEGRATOR
### Telvent USA Corporation

## 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 (CTTP). 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. A tabulation of ***Detailed Lane Configurations*** for the Toll Collection System (TCS) as currently anticipated for the 183A Phase II Project ("the Project") is included as part of this Exhibit A. The TCS for the 183A Phase II Project will be all Electronic Toll Collection (ETC). The Project are currently expected to open to traffic in 2012, and it will be subject to tolls.

### A1.02. Summary Scope of Work

The Scope of Work for Work Authorization No. 5 provides for the procurement, installation, testing, and implementation of a complete and fully operational TCS for the Project, including all of the required communications and systems interfaces. The Work alsoincludes design, coordination, and project interface activities to facilitate the design and construction of the toll system infrastructure facilities by others on 183A Phase II Project.

This Work Authorization also authorizes Telvent USA Corporation, as the Systems Integrator (SI), to establish and maintain relationships with a wide variety of third parties and to coordinate the designs for the proposed TCS with the 183A Phase II 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 various designers and roadway contractors in developing the required TCS and network infrastructure.

# EXHIBIT A

## A2.0 General Description – Toll Road Infrastructure and Site

### A2.01. 183A Phase II: FM 1431 to North of RM2243

The 183A Phase II Project limits extend from FM 1431 to north of RM 2243, for a total length of approximately 5.1 miles. The existing roadway includes two frontage roads with a grassed median. Average right-of-way width is approximately 400 feet. There are several signalized grade separated intersections, approximately every mile, located at New Hope Road, Scottsdale Drive, Crystal Falls Parkway, & RM 2243 One new signalized intersection at the frontage road of 183A and Scottsdale Drive is to be constructed as part of the 183A Phase II project.

Proposed Facility: The improved corridor will include a six- lane Toll Road (three lanes in each direction). The Toll Lanes will have a depressed grassed median that is reserved for future transportation uses. The Toll Lanes will be separated from the frontage roads by a grassed median and physical barrier.

The Toll Lanes will be elevated or depressed at cross-streets in order to by-pass the existing at-grade intersections.

## A3.0 General Description - Toll Collection System Elements

### A3.01. General Requirements

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 designed and implemented for the original 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 System 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 that 183A Phase II Project includes coordination 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 existing Field Operations Building, and the VPC are part of the requirements of the design/implementation work.

The Violation Processing Center (VPC) is located in a separate facility, and it 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 existing Field

# EXHIBIT A

Operations Building and the CSC are part of the requirements of the design/implementation work.

A revised detailed tabulation of the elements of the TCS, indicating locations and basic components is attached as "***Detailed Lane Configurations***". The general locations and layouts for the toll facilities of the 183A Phase II Project as currently proposed, are indicated on the attached schematic diagram. This diagram is based on the latest information currently available and 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.

## A4.0 General Description - Gantries and Roadside Equipment for ETC Systems

For all TCS field installations on the 183A Phase II Project, the SI will be required to provide and install the toll equipment systems and hardware for a complete, tested, and operating TCS 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 In-Lane Processor (ILP) enclosure, with HVAC for appropriate environmental protection and climate controls for electronic equipment.
- Furnish & Install Backup Electrical Power including Emergency Generators, Fuel Tanks, and Automatic Transfer Switches.
- 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.
- 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 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 Contractor.
- Furnish & Install Uninterruptible Power Supply, including wiring & cable, hardware, and ROMs interface.
- Furnish & Install ROMs monitoring for all ETC site equipment (i.e.: ETC Equipment, AVDS, AVC, AVI, VES, HVAC, Generators, power, communications equipment, etc).

# EXHIBIT A

- Furnish & Install Site Surveillance & Security System.
- Provide complete testing, certification and acceptance of all systems for the complete, fully operational TCS, furnished and installed.

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

## A5.0 Coordination and Project Interface

The work related to this Work Authorization No. 5 generally will include, but not be limited to:

- design input and providing detailed information including TCS component details, dimensions and layout configurations, and specific technical requirements for elements of the proposed TCS;
- preparation of construction/installation guidelines for various components of CTRMA's TCS;
- 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.

The SI is to participate in the process for coordination which will enable the contractors and designers on the 183A Phase II Project to obtain specific, detailed information regarding the proposed TCS 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 in developing the required network.

All TCS infrastructure facilities at the remote Express Toll Locations on the Project 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 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.

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 are located and configured properly to accommodate the SI's own particular system components as required to meet the CTRMA TCS performance and accuracy requirements.

# EXHIBIT A

## A6.0 Work by Others

### A6.01. Civil/Roadway Construction

The CTRMA, through its roadway construction contract will provide for a minimum of 60 linear feet of jointed concrete pavement at 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 TCS 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 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 Ground 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

# EXHIBIT A

- All signing, pavement markings, traffic barriers and other roadway appurtenances required at each remote Express Toll Location.

## A7.0 Work Authorization No. 5 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 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. 5 as presented in Exhibit C.

[END OF SECTION]

Central Texas Regional Mobility Authority

CTRMA Turnpike System

# Detailed Lane Configurations

| Project | CTRMA Turnpike Seg | Toll Plaza or Express Toll Location | Lane Number | Lane Width in Feet | Lane Type: MAN/ETC | Lane Type: ACM/ETC | Lane Type: DED/ETC | Lane Type: Exp. ETC | Overhead Gantry | Exterior Control Cabinet | Lane Controller Hardware: ETC Toll Lane | Lane Controller Hardware: Express ETC | Lane Controller Hardware: VES, Toll Lane | Violation Enforcement System Hardware | AVC System, Toll Lane | Automatic Vehicle Classification System | AVI System Hardware, Toll Lane | AVI System Hardware, Express ETC Lane | Uninterruptible Power Supply | Emergency Generator & Automatic Transfer Switch | ILP Building | VES Storage - Tera Bytes SAN | Host Data Base - Add 1TB | ROMS Data Base - Add 6TB SAN | VPS Servers - Add 2TB Total | Network Routing Engines | Installation Fiber Cab, Pwr Ckt Etc [3] | Back Office UPS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 183A Phase II Project | | RMP NB 535+50 NB | 1 | 4 | | | | | 1 | | 1 | | 1 | | 1 | | | 1 | 1 | 1 | 1 | | | | | | | |
| | | | 2 | 34 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 3 | 6 | | | | 1 | | | 1 | | 1 | | 1 | | | | | | | | | | | | | |
| | | | Subtotal | | | | | 2 | | | 3 | | 2 | | 3 | | 2 | 1 | 1 | 1 | 3 | | | | | | | |
| | | ML-Scottsdale Sta 507+00 NB | 1 | 10 | | | | 1 | 1 | | 1 | | 1 | | 1 | | | 1 | 1 | 1 | 1 | | | | | | | |
| | | | 2 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 3 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 4 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 5 | 10 | | | | 1 | | | 1 | | 1 | | 1 | | | | | | 1 | | | | | | | |
| | | | Subtotal | | | | | 5 | | | 5 | | 5 | | 5 | | 3 | 1 | 1 | 1 | 5 | | | | | | | |
| | | ML-Scottsdale Sta 507+00 SB | 1 | 10 | | | | 1 | 1 | | 1 | | 1 | | 1 | | | | | | 1 | | | | | | | |
| | | | 2 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 3 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 4 | 12 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 5 | 10 | | | | 1 | | | 1 | | 1 | | 1 | | | | | | 1 | | | | | | | |
| | | | Subtotal | | | | | 5 | | | 5 | | 5 | | 5 | | 3 | | | | 5 | | | | | | | |
| | | RMP NB4 443+00 NB | 1 | 4 | | | | | 1 | | 1 | | | | 1 | | | 1 | 1 | 1 | 1 | | | | | | | |
| | | | 2 | 14 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 3 | 6 | | | | 1 | | | 1 | | 1 | | 1 | | | | | | 1 | | | | | | | |
| | | | Subtotal | | | | | 2 | | | 3 | | 2 | | 3 | | 2 | 1 | 1 | 1 | 3 | | | | | | | |
| | | RMP SB4 445+00 SB | 1 | 4 | | | | | 1 | | 1 | | | | 1 | | | 1 | [redacted] | 1 | 1 | | | | | | | |
| | | | 2 | 14 | | | | 1 | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | | | | | | |
| | | | 3 | 6 | | | | 1 | | | 1 | | 1 | | 1 | | | | | | 1 | | | | | | | |
| | | | Subtotal | | | | | 2 | | | 3 | | 2 | | 3 | | 1 | 1 | | 1 | 3 | | | | | | | |
| Administrative Offices | | N/A | Total Admin. Offices | | | | | | | | | | | | | | | | | | 19 | | | | | | | |
| Grand Totals | | | | | | | | 16 | | | 19 | | 16 | | 19 | | 15 | | 9 | 4 | 3 | 4 | 38 | | | | | |

**Notes:**

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 read 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.

[1] Traffic Signal heads will only have Red and Green Lights (ATT and ACM) or Yellow (w/low balance stencil) and Green (w/thank you stencil) (D/ETC).

[2] Traffic Signal heads will have Red, Yellow (w/low balance stencil,) and Green Lights.

[3] Furnish & Install all that is necessary to include All Cabinets, Hardware, Cabinet Ventalation, 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 TSI 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

# TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
## 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | 2 | 3 |
|---|---|---|---|
| | Design | Procure | Install and/or Construct |

| Element/Task/Component/ Sub-system | Designer/Contractor (for CTRMA) | | | System Integrator (SI) | | | Comments Other Responsibility/Information |
|---|---|---|---|---|---|---|---|
| **TOLL COLLECTION FACILITIES** | 1 | 2 | 3 | 1 | 2 | 3 | |
| **TOLL GANTRIES, RAMPS & ENCLOSURES** | | | | | | | |
| Schedule | A | A | A | B | C | B | |
| Gantries, Ramp Lane and Enclosure Layouts<br>ILP Enclosure Foundation<br>Generator & Fuel Tank Foundations<br>Roadside Cabinets Foundations | A | A | A | B | C | C | SI to provide requirements for specific lane and enclosure layouts. Designer to incorporate into Physical Layout Design Packages. Roadway Contractor to furnish and install foundations with conduit and other systems rough-in's |
| Gantry & Enclosure Physical Layout | A | A | A | B | C | C | Concept Drawings provided by Designer |
| Grading | A | A | A | C | D | C | |
| Drainage | A | A | A | C | D | C | |
| Aesthetic Committee Review/Approval ILP Enclosure | C | C | C | A | A | A | Concept Drawings provided by Designer. SI to review for tolling equipment placement requirements.<br>SI to submit details of ILP enclosure for Review and Approval prior to release of procurement notice to vendor. |
| Aesthetic Committee Review/Approval Gantry Structure | A | A | A | C | C | C | Concept Drawings provided by Designer.<br>Roadway Contractor to Furnish & Install ETC Gantry Structure<br>SI to review for tolling equipment placement requirements.<br>Roadway Contractor to submit details of Gantry Structure for Review and Approval |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
## 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | 2 | 3 |
|---|---|---|---|
| | Design | Procure | Install and/or Construct |

| Element/Task/Component/ Sub-system | Designer/Contractor (for CTRMA) | | | System Integrator (SI) | | | Comments Other Responsibility/Information |
|---|---|---|---|---|---|---|---|
| | | | | | | | prior to release of procurement notice to vendor. |
| Utilities | A | A | A | B | C | C | SI to provide specific electrical power requirements HVAC & Toll Collection System. Designer to incorporate into the design Roadway Contractor will install, excluding provisions for UPS and emergency generators. |
| HVAC | B | B | B | A | A | A | SI to provide HVAC as part of the ILP Enclosure |
| Striping | A | A | A | B | D | D | SI to provide requirements for Toll Collection System specific striping. Designer to incorporate into Striping Plan. Roadway Contractor to furnish and install |
| Gantries | A | A | A | B | D | C | SI to provide requirements for specific equipment mounts, conduits, J boxes, power and data wiring for Toll Collection System. Designer to incorporate into design. Roadway Contractor will furnish and install. |
| Roadside Cabinets & ILP Enclosure Foundations; Electrical Power & Data: Conduits, Primary Electrical Power Conductors & Electrical Service and Utility power | A | A | A | B | D | C | SI to provide requirements for specific equipment mounts, conduits, J boxes, power and data wiring for Toll Collection System. Designer to incorporate into design. Contractor will provide and install foundations, Electrical Power & Data: |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | 2 | 3 |
|---|---|---|---|
| | Design | Procure | Install and/or Construct |

| Element/Task/Component/ Sub-system | Designer / Contractor (for CTRMA) | | | System Integrator (SI) | | | Comments Other Responsibility/Information |
|---|---|---|---|---|---|---|---|
| | | | | | | | Conduits, Electrical Power Conductors & Electrical Service and Utility power.<br>SI to furnish and install ILP Enclosure with HVAC |
| Roadside Cabinets & ILP Enclosure with Air Conditioning | B | C | B | A | A | A | SI to provide requirements for specific equipment mounts, conduits, J boxes, power and data wiring for Toll Collection System.<br>Designer to incorporate into design.<br>Contractor will provide and install.<br>SI to furnish and install ILP Enclosure with HVAC |
| Systems Servers & Workstations | B | C | C | A | A | A | |
| Fencing/Guardrail/Bollards | A | A | A | B | C | C | SI to provide requirements for specific equipment clearances for Toll Collection System.<br>Designer to incorporate into Roadway Design.<br>Roadway Contractor to furnish and Install. |
| Communications System and Facility Security Design:<br>Physical Security | A | A | A | B | B | B | SI to provide communications and security design requirements at each tolling location for Toll Collection System.<br>Designer to incorporate physical security requirements into the designs.<br>Roadway Contractor to furnish and install<br>SI to furnish and Install Access UL listed Door and lock. |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
## 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | 2 | 3 | | | | |
|---|---|---|---|---|---|---|---|
| | Design | | | Procure | | Install and/or Construct | |
| • **Construction Office / Storage Trailer** | | | | | | | |
| Site Grading | A | A | A | C | D | C | |
| Trailer Hook-ups | A | A | A | C | D | C | |
| • **VES Cameras** | | | | | | | |
| VES Camera, Light Sensor & Strobe Flash Mounting Supports | A | A | A | B | D | C | SI to provide VES Camera, Light Sensor & Strobe Flash Mounting design requirements at each tolling location for Toll Collection System. Designer to incorporate provisions for VES Camera & Strobe Flash mounting into the designs. Roadway Contractor to furnish and install VES Camera & Strobe Flash mounting support structure. SI to furnish and Install VES Camera & Strobe Flash Equipment. |
| Cameras, Light Sensor &Strobe Flash mounting and enclosures | B | B | B | A | A | A | SI to furnish and Install VES Camera & Light Sensor Equipment, including equipment mounting brackets, power and data cable & wiring |
| Overhead Lane Mode Signals & LED's | N/A | N/A | N/A | N/A | N/A | N/A | |
| Canopy Over-ride Switch | N/A | N/A | N/A | N/A | N/A | N/A | |
| CO Sensors | N/A | N/A | N/A | N/A | N/A | N/A | |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1<br>Design | 2<br>Procure | 3<br>Install and/or Construct | | | | |
|---|---|---|---|---|---|---|---|
| • **Lanes/Islands** | | | | | | | |
| Vehicle Detection/Classification Sensors Pavement Structure | A | A | A | B | D | C | SI to provide the sensor design requirements. Designer to incorporate provisions for sensors into the design. |
| Vehicle Detection/Classification Sensors Installation of AVDS and AVC | B | B | B | A | A | A | SI to provide the sensor design requirements.<br>SI to provide and install VD/CS, including cutting and saw cutting, winding and sealing loops. |
| Island Traffic Signal Head Conduit, J Box, Wiring | N/A | N/A | N/A | N/A | N/A | N/A | |
| Flashing Warning Lights Conduit/Boxes/Wiring | N/A | N/A | N/A | N/A | N/A | N/A | |
| **PROJECT OPERATING SUB-SYSTEMS** | | | | | | | |
| Design | A | A | N/A | B | B | N/A | |
| Ducts & Conduits | A | A | A | B | B | C | |
| Utility Vaults & Junction/Pull Boxes | A | A | A | B | B | C | |
| Communication Conductors & Fiber | B | B | B | A | A | A | All communication up to demark shall be provided by others. All fiber, fiber termination, fiber installation shall be provided by SI. |
| Power Conductors & Wiring<br>Primary Electrical power, including electrical service, feeder conduits, conductors, and connections to Automatic Transfer Switch, including foundation and conduits for generator and fuel tank | A | A | A | B | B | B | Designer to provide utility electrical service, and primary power to Automatic Transfer Switch<br>SI to furnish and install Backup Generator, Fuel tank, automatic Transfer Switch |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 Design | | | 2 Procure | | | 3 Install and/or Construct | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| All conduit, wire ways, J-boxes, bushings and pull strings on gantries | A | A | A | B | B | C | Contractor shall provide and install all conduit, wire ways, J-boxes, bushings and pull strings on gantries. |
| Power Conductors & Wiring Backup Generator, Fuel Tank, Automatic Transfer Switch, except generator and fuel tank foundations | B | C | C | A | A | A | Designer to provide utility electrical service, and primary power to Automatic Transfer Switch<br>SI to furnish and install Backup Generator, Fuel Tank, Automatic Transfer Switch |
| **PROJECT POWER DISTRIBUTION SUB-SYSTEM** | | | | | | | |
| Conduits/Ducts & Junction/Pull Boxes/ Outlets up to the Automatic Transfer Switch | A | A | A | B | D | B | Contractor to provide necessary conductors, ducts & junction/pull boxes and install up to the Automatic Transfer Switch. SI shall provide and install Automatic Transfer Switch. |
| Generators Main Lane Toll Gantry, Ramp Lane Toll Gantry & Fuel Tank with Initial Full Tank | B | C | B | A | A | A | SI to provide design requirements for Generator, Automatic Transfer Switch, and Fuel Tank, including wire and cable requirements<br>Contractor to provide foundation pads and conduit rough-in.<br><br>SI to furnish and install, Generator, Automatic Transfer Switch, and Fuel Tank, including wire and cable, and MOMs interface |
| Uninterruptible Power Supplies | B | C | C | A | A | A | SI to provide Toll Collection System UPS power as part of the ILP Enclosure installation. |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | | 2 | | 3 | | |
|---|---|---|---|---|---|---|---|
| | Design | | Procure | | Install and/or Construct | | |
| Lightning Protection & Grounding | A | A | A | B | D | B | Designer to provide Lightning Protection System for ETC Gantries and ILP Enclosure.<br><br>Contractor to furnish and install Lightning Protection System. Including Master Ground Bus Bar for ILP |
| Lightning Protection & Grounding | C | D | C | A | A | A | SI to furnish and install ETC System lightning surge suppression system, including Primary and backup power electrical Service and feeder circuits. |
| **INTELLIGENT TRANSPORTATION SYSTEMS (ITS)** | | | | | | | |
| Design | N/A | N/A | N/A | N/A | N/A | N/A | |
| Conduits/Ducts & Junction/Pull Boxes | A | A | A | B | C | C | SI to provide size, number, terminus points for Toll Collection System elements. |
| **COMMUNICATIONS SUB-SYSTEMS** | | | | | | | |
| Outside Physical Plant(OSP) | A | A | A | B | B | C | OSP: SI to provide Plaza specific communications design requirements. Designer to incorporate into the ITS design. |
| Design<br>Outside Cable Plant and Inside Network Equipment | C | C | C | A | A | A | SI to furnish, install, and make operational all outside and inside cable plant and equipment |
| Conduits/Ducts & Junction/Pull Boxes/Outlets | A | A | A | B | C | C | SI to provide specific Communications design requirements for Toll Collection System.<br>Designer to incorporate into the design Roadway Contractor to furnish & install. |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 Design | 2 Procure | 3 Install and/or Construct | | | |
|---|---|---|---|---|---|---|
| Fibers (including future) | C | D | C | A | A | A | SI to provide requirements inside and outside cable plant including all termination and distribution. SI to terminate and connect network equipment. |
| Computer Rack System | D | D | D | A | A | A | |
| Routers | D | D | D | A | A | A | |
| Hubs | D | D | D | A | A | A | |
| Switches | D | D | D | A | A | A | |
| Firewalls | D | D | D | A | A | A | |
| Virtual Private Network (VPN) | D | D | D | A | A | A | |
| Modems | D | D | D | A | A | A | |
| Patch/Distribution Panels | D | D | D | A | A | A | |
| Tolling Location Phone Service | D | D | D | A | A | A | SI to provide network service point requirements.<br>SI and CTRMA to extend network provider service to ILP Enclosures. |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 Design | 2 Procure | 3 Install and/or Construct | | | | |
|---|---|---|---|---|---|---|---|
| **TOLL COLLECTION SYSTEMS** | | | | | | | |
| Toll Plaza Host Computer | D | D | D | A | A | A | SI to provide the required equipment racks, conduit, data and power wiring and structure to mount equipment. |
| Back-up Host Computer | D | D | D | A | A | A | SI to provide the required equipment racks, conduit, data and power wiring and structure to mount equipment. |
| Toll Lane In-Lane Processors | C | D | B | A | A | A | SI to provide Designer with requirements. Designer to incorporate into design. SI to provide conduit and structure to mount equipment.<br>SI to furnish and install in ILP |
| MOMS (Maintenance Online Management System) | D | D | D | A | A | A | SI to provide connection/interface with MOMS server. |
| VES Computer | B | B | B | A | A | A | SI to provide Designer with requirements. Designer to incorporate into design. SI to provide conduit and structure to mount equipment.<br>SI to furnish and install ILP |
| FCC Licenses/Regulations as applies to AVI | A | D | A | A | B | B | SI to provide required documentation to permit the CTRMA to obtain the required licenses to use and or operate AVI equipment and components.<br><br>SI to provide exhibit documents for Application and FCC Schedule D & H |

## TOLL COLLECTION SYSTEMS IMPLEMENTATION AND MAINTENANCE
### 183A Phase II Project

| LEGEND | |
|---|---|
| Primary Responsibility | A |
| Support Responsibility | B |
| Coordination Responsibility Only | C |
| No Responsibility | D |

| Work Description | 1 | 2 | 3 | | | | |
|---|---|---|---|---|---|---|---|
| | Design | | | Procure | | | Install and/or Construct |
| | | | | | | | Contractor to provide NAD83 Lat & Long, and Elevation Data |
| Express AVI lanes<br>AVI Antenna Mounting, Conduits and J-Boxes | A | A | A | B | D | B | SI to provide Designer with AVI requirements.<br><br>Designer to incorporate into design.<br><br>Roadway Contractor to provide structure, mounting support, and conduit to install AVI Antenna and cable<br><br>SI to furnish and install AVI System |
| Express AVI lanes<br>AVI System | B | D | B | A | A | B | SI to furnish and install AVI System |

# EXHIBIT C

## 183A PHASE II PROJECT
## SCHEDULE MILESTONES

| Task | Duration |
|---|---|
| Advertise For Construction | October 23,2009 |
| Bid Opening | November 25, 2009 |
| Contract Award | December 17, 2009 |
| Issue Notice to Proceed 1 | March 24, 2010 |
| Issue Notice to Proceed 2 | March 24, 2010 |
| Issue Notice to Proceed 3 | November 29, 2010 |
| **Complete Tolling Facilities Construction** | **November 24, 2011** |
| **Substantial Completion** | **March 23, 2012** |
| Final Acceptance | June 21, 2012 |

| CTRMA 183A<br>EQUIPMENT | | | | | |
|---|---|---|---|---|---|
| **ITEM #** | **QTY.** | **UNIT** | **DESCRIPTION** | **UNIT PRICE** | **EXT PRICE** |
| 1 | 16 | Ea. | Lane Controller Hardware | $ 3,150.00 | $ 50,400.00 |
| 2 | 8 | LS | Communication Equipment | $ 6,318.00 | $ 50,544.00 |
| 3 | 16 | Ea. | Automatic Vehicle Classification System, Express ETC Lane | $ 12,859.00 | $ 205,744.00 |
| 4 | 9 | Ea. | AVI System Hardware, Express ETC Lane | $ 9,181.00 | $ 82,629.00 |
| 5 | 16 | Ea. | Violation Enforcement System Hardware, Express ETC Lane | $ 35,689.00 | $ 571,024.00 |
| 6 | 8 | Ea. | Plaza Computer System Hardware | $ 15,892.00 | $ 127,136.00 |
| 7 | 8 | Ea. | ILP Building Equipment | $ 68,353.00 | $ 546,824.00 |
| 8 | 1 | LS | Host Computer System Hardware | $ 478,949.00 | $ 478,949.00 |
| 9 | 1 | LS | Spare Equipment | $ 107,498.00 | $ 107,498.00 |
| | | | | **Total Equipment** | **$ 2,220,748.00** |

| CTRMA 183A<br>SYSTEM SOFTWARE AND PROJECT SERVICES | | | | | |
|---|---|---|---|---|---|
| **ITEM #** | **QTY.** | **UNIT** | **DESCRIPTION** | **UNIT PRICE** | **EXT PRICE** |
| 100 | 1 | LS | Installation/Electrical Design and Plans | $ 45,934.00 | $ 45,934.00 |
| 101 | 1 | LS | Field Installation and Electrical Work, Materials and Labor | $ 655,648.00 | $ 655,648.00 |
| 102 | 1 | LS | Commissioning/Operational Testing | $ 23,904.00 | $ 23,904.00 |
| 103 | 1 | LS | Lane Controller Software | $ 18,287.00 | $ 18,287.00 |
| 104 | 1 | LS | Plaza Computer Software | $ 36,573.00 | $ 36,573.00 |
| 105 | 1 | LS | Host Computer Software | $ 44,701.00 | $ 44,701.00 |
| 106 | 1 | LS | Toll Collection System Application Software | $ 35,527.00 | $ 35,527.00 |
| 107 | 1 | LS | Security Access System Software | $ 6,096.00 | $ 6,096.00 |
| 108 | 1 | LS | Maintenance Online Management System Software | $ 18,287.00 | $ 18,287.00 |
| 109 | 1 | LS | Factory Acceptance Test | $ 62,052.00 | $ 62,052.00 |
| 110 | 1 | LS | Project Acceptance Test | $ 66,760.00 | $ 66,760.00 |
| 111 | 1 | LS | Training | $ 18,090.00 | $ 18,090.00 |
| 112 | 1 | LS | Documentation | $ 56,434.00 | $ 56,434.00 |
| 113 | 1 | LS | Project Management | $ 56,495.00 | $ 56,495.00 |
| | | | **Sub-Total System Software and Project Services** | | **$ 1,144,788.00** |
| | | | **TOTAL PROPOSED PRICE (183A)*** | | **$ 3,365,536.00** |

*** Excludes:**

-- All Recurring Data Communication Costs
-- Recurring 3rd-Party SW/HW Support Agreements & SW Licenses
-- Bonding
-- System HW/SW Warranty/Maintenance Services/Support & Spares Replenishment Costs